ROUTLEDGE HANDBOOKS



The Routledge Handbook of Applied Linguistics

Volume One

Second Edition

Edited by Li Wei, Zhu Hua, and James Simpson

The Routledge Handbook of Applied Linguistics

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Acknowledgements

When Louisa Semlyen from Routledge asked us (Li Wei and Zhu Hua) over coffee whether we would be interested in leading a new edition of *The Routledge Handbook of Applied Linguistics*, we said yes without hesitation. That was July 2019, and life was busy but happy and rather different. Little did we know that the project would span over the COVID-19 pandemic, during which both of us changed our jobs significantly – Li Wei has taken on a major leadership role in his university and Zhu Hua changed institutions twice. James Simpson, who masterfully edited the first edition of the successful *Handbook*, also changed his job and crossed continents to Hong Kong. The new handbook project provided a good distraction from social media and politics but was also interwoven with changes in our family and work circumstances.

We are most grateful to Louisa Semlyen and her team in Routledge, in particular, Eleni Steck and Talitha Duncan-Todd, for their support, understanding, and gentle nudges along the way. We are equally grateful to Sahra Abdullahi, who has assisted us in communicating with the contributors of no fewer than 60 chapters and keeping track of the progress, and to Tania Douek who stepped in at very short notice in the final copy-editing stage. We were most impressed by and grateful for our contributors' commitment, fortitude, and support throughout this project.

The new edition builds on the success of the first edition published in 2011. Our gratitude is extended to the colleagues who were involved in the first edition in various capacities. Their effort has not been forgotten.

This project is testimony to the dedication and achievements of generations of eminent scholars in the exciting and diverse field of applied linguistics. It will, we hope, contribute to the vitality of the field and showcase the best of what applied linguists can do.

Introduction

Li Wei, Zhu Hua, and James Simpson

The new edition of the *Routledge Handbook of Applied Linguistics* builds on the success of the first edition, edited by James Simpson and published in 2011, by refreshing and expanding the coverage to reflect the developments of the field over the last decade. As with the first edition, the *Handbook* is intended as an essential reference to key topics in applied linguistics, with each chapter providing an accessible overview of an area of the field.

Applied linguistics as a transdisciplinary field

Applied linguistics is a transdisciplinary field which connects knowledge about language and language users to policies and practices in specific contexts. Generally speaking, the role of the applied linguist is to make insights drawn from areas of language study, combined with other disciplinary approaches, relevant to society and individuals' lives. In this sense, applied linguistics mediates between theory and practice. In the last decade, there has been a growing recognition of the value of new theorizations and conceptualizations that emerge from applied research with impact on policy and practice. Applied linguistics has shown the promise of becoming a theory of practice in itself (Kramsch 2015) or a practical theory of language and communication (Li 2018).

The origins of applied linguistics lie in the mid-20th century effort to give an academic underpinning to the study of language teaching and learning. Until at least the 1980s, applied linguistics was most closely associated with the problems and puzzles surrounding language pedagogy, learning, and acquisition. Whilst language teaching and learning remains the core of applied linguistics of the 21st century, the focus of various subfields has shifted considerably. The acquisition and learning of specific domains of language (e.g. phonology, vocabulary, pragmatics) have become central issues for second language acquisition (SLA) research, and teacher development, material, and syllabus design have become core areas for TESOL and second and foreign language education. What remains under the rubric of applied linguistics are investigations of learner language (often with corpora), classroom discourse, motivation, learner strategy, content and task-based learning, and language testing. In the meantime, new areas have opened up for applied linguists to explore. For example, translanguaging or translingual practices, interculturality, intersections between translation and politics and the

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law, bi- and multilingualism, media discourse, forensic linguistics, sign language, language planning and language policy, and family language policy, as well as new issues of scholarly concerns, such as gender, ethnicity and social class, neoliberal ideologies, (in)equality and social justice, and linguistic landscapes. Some of these areas have long and well-established histories. But a new generation of applied linguists has joined established researchers to raise new questions and develop new analytical perspectives. Many of the new research sites came to the attention of applied linguists because of the intensification of global migration and contact between people of different linguistic and cultural backgrounds (Block and Cameron 2001). The applied linguist's traditional focus on the language learner gradually expanded to the diversity of language user groups. Globalization and language contact also motivated some to raise questions of access to linguistic resources. A speaker's apparent lack of proficiency in a particular language may have nothing to do with their cognitive capacity but could be the result of a lack of opportunity to access the necessary resources to learn and use the language. Such issues manifest themselves not only in language teaching classrooms but also in the workplace as well as health and legal contexts. The new edition of the *Handbook* further demonstrates the vitality and widening scope of the field through updating the chapters in the original edition and bringing in the new topics that have emerged in the last decade. Examples of the latter include chapters on content and language integrated learning, curriculum and material from the perspective of decolonization and inclusivity, language awareness, critical and posthumanist applied linguistics, linguistic landscapes, digital communication, language and race, ecolinguistics, and translanguaging.

The diversity of interests of applied linguists and the ever-expanding scope of the field notwithstanding, applied linguistics maintains its distinctive conceptual focus. The most widely cited definition of applied linguistics comes from Christopher Brumfit, who describes it as 'the theoretical and empirical investigation of real-world problems in which language is a central issue' (1995: 27). Brumfit's definition is broad enough to encompass the range of areas of enquiry indicated. It also firmly distinguishes applied linguistics from other related fields by making it problem-oriented. While language is, of course, fundamental to human life and surrounds us, the problem orientation helps to delimit the field. That is, the motivation for applied linguistics lies not with an interest in autonomous or idealized language, as with understandings of linguistics which deal in linguistic universals: applied linguistics data is collected empirically in contexts of use. Neither is its concern with the entirety of 'language in use'. It is demarcated by its interest in how language is implicated in real-world issues.

The scope and structure of the *Handbook*

This new edition of the *Handbook* consists of two volumes, 30 chapters each, but retains a broadly similar chapter format, covering a history of the area, a critical discussion of its main current issues, and an indication of its emergent debates and future trajectory. Chapters conclude with a list of related topics in the *Handbook*. Bibliographical references appear at the end of each chapter, making them self-contained. Finally, each chapter has a section on further reading: a short annotated list of works which readers might consult for a more in-depth treatment of the area.

Volume 1 of the *Handbook* focuses on language learning and language education. It is made of two parts. Part I is on language learning and language education – the historical core of applied linguistics, with the aim of addressing practical problems in language learning and teaching. The new edition includes the topics which have emerged or have seen considerable development in last few years, such as content and language integrated learning, language

learning across the lifespan, English as an additional language, and the topics which were not included in the first edition due to space constraints, such as curriculum and material and language awareness. Part II is on key areas and approaches to applied linguistics. The section foregrounds the range of different conceptualizations and methodological approaches as well as the interdisciplinarity of applied linguistics.

Volume 2 also contains two parts and focuses on broader issues beyond language teaching and learning that applied linguists deal with. In Part I, 'Applied linguistics in society', new topics include family language policy, critical applied linguistics, digital communication, intercultural communication, institutional discourse, language and race, and politics and applied linguistics. Part II, 'Broadening horizons' contains new chapters on language attrition, posthumanism and applied linguistics, linguistic landscapes, endangered languages, ecolinguistics, and translanguaging.

The contents of this volume can be found on the Table of Contents pages. The contents of Volume 2 include:

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1 Multilingualism – Jasone Cenoz and Durk Gorter
2 Language and migration – Mike Baynham and James Simpson
3 Language policy and planning – Lionel Wee
4 Family language policy – Kendall King
5 Critical discourse analysis, critical discourse studies, and critical applied linguistics – Karin Zotzmann and John O'Regan
6 Digital language and communication – Caroline Tagg
7 Intercultural communication – Zhu Hua
8 Institutional discourse – Zsófia Demjén and Miguel Pérez-Milans
9 Medical communication – Sarah Collins, Sarah Peters, and Ian Watt
10 English for professional communication: a critical genre analytical perspective – Vijay Bhatia and Aditi Bhatia
11 Identity – Bonny Norton and Monica Shank Lauwo
12 Gender and sexuality – Helen Sauntson
13 Language and race – Jennifer B. Delfino and H. Samy Alim
14 Politics and applied linguistics – Philip Seargeant
15 World Englishes and English as a lingua franca – Andy Kirkpatrick and David Deterding

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16 Sign languages – Bencie Woll and Rachel Sutton-Spence
17 Lexicography – Thierry Fontenelle
18 Translation and interpreting – Mona Baker and Luis Pérez-González
19 First language attrition: bridging sociolinguistic narratives and psycholinguistic models of attrition – Beatriz Duarte Wirth, Anita Auer, and Merel Keijzer
20 Clinical linguistics – Vesna Stojanovik, Michael Perkins, and Sara Howard
21 Language and ageing – Lihe Huang
22 Forensic linguistics – Tim Grant and Tahmineh Tayebi
23 Linguistic ethnography – Karin Tusting
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We hope that the new enlarged edition of the *Handbook* further reflects the scope of contemporary applied linguistics and will stimulate the interests of a new generation of students and researchers in this exciting and diverse field.

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Part I

Language learning and language education



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Conceptualizing language education

Theories and practices

Diane Larsen-Freeman

Introduction

Language education is a complex dynamic system. Conceptualizing language education in this way highlights the interdependence of its heterogeneous constituents within an ecology (van Lier 2010). The constituents of the system – its agents (e.g. teachers, students, and other stakeholders), loci (e.g. intra-and extramural), activities (e.g. learning and teaching), related processes (theorizing, researching, and policy-making), and symbolic influences (e.g. ideologies) – all interact to constitute a system or collective whole. Moreover, all these constituents are dynamic – continually emerging and being transformed in turn. Importantly, the constituents interface with an external spatio-temporal context, where both the constituents and the context reciprocally adapt to one another. Indeed, any system that is (conceived to be) irreducibly self-contained cannot meaningfully relate to the world 'outside' (Leather and van Dam 2003: 6).

The chapter considers language, learning, and teaching embedded within a context, as can be seen in the three angles of a triangle in Figure 1.1, a convenient (if compromised because of its simplifying stasis) heuristic for organizing a discussion of language education. The context is broadly interpreted to mean any place, social situation, or time in which language education takes place at any level of scale. For instance, it could be a contemporary national context or a more local classroom context with a particular group of students at a particular time. Contextual factors affect answers to the questions in the angles as does the influence of prevailing theories at a particular time. In other words, there are no absolute answers to these questions at any one time or over time, and more recent developments are not necessarily superior to those which preceded them. It is important to understand from whence our current understanding has come. Therefore, for each angle, a brief history is sketched, and a somewhat longer and highly selective discussion of current issues follows. Importantly, these angles are interconnected, as represented by the bidirectional lines in the figure, and those connecting the three angles to the spatio-temporal context.

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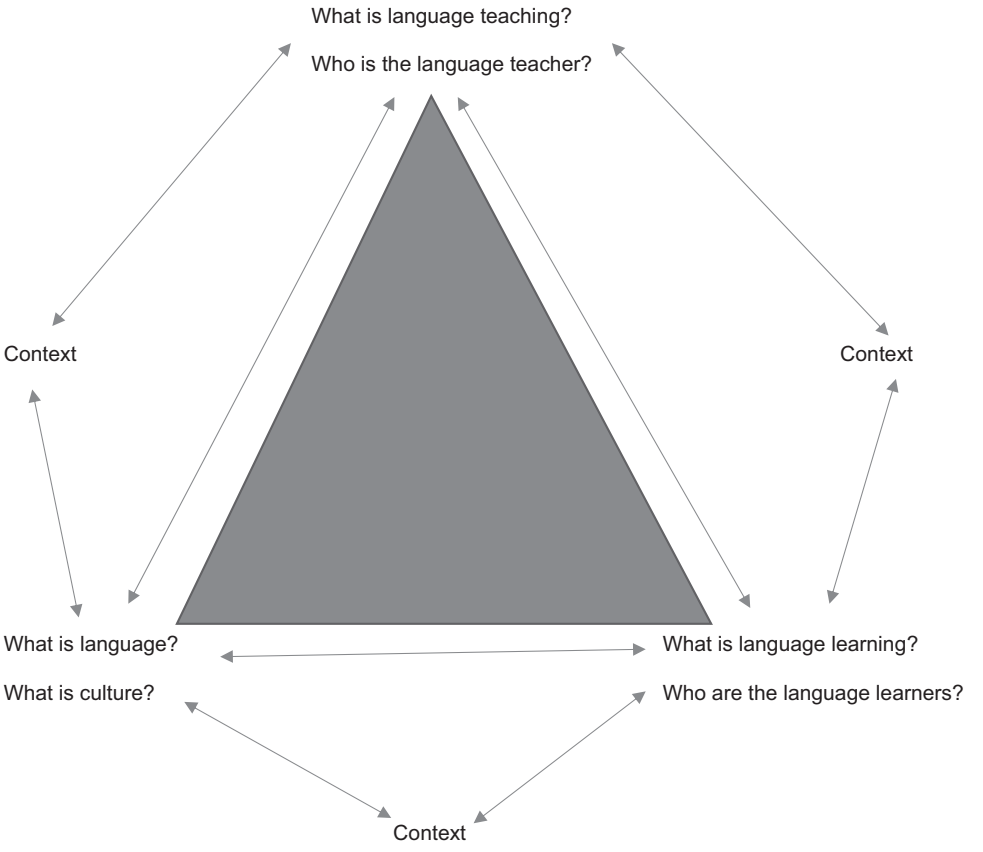


Figure 1.1 Questions related to language education

What is language? What is culture?

For many applied linguists, language and culture are inextricable, where culture means the way that people express themselves and interpret the expressions of others as they share a social space and history. It is not considered sufficient to simply get one's ideas across. Following the French sociologist, Bourdieu, Kramsch (2020) has stated that languages have 'symbolic power'.

What then is language? Becker (1983: 219) has written that 'Our "picture" of language is the single most important factor . . . in determining the way we choose to teach it.' However, it is not always the individual teacher whose picture defines language for pedagogical purposes. It is often the curriculum designer or materials developer who has initial say, although how teachers mediate the materials still gives them enormous control (Graves 2021). After all, we teach something as we understand it ourselves.

The answer to the question 'What is language?' is by no means straightforward.

Cook and Seidlhofer (1995: 4) summarize,

> Language is viewed in various theories as a genetic inheritance, a mathematical system, a social fact, the expression of individual identity, the expression of cultural identity, the outcome of dialogical interaction, a social semiotic, the intuitions of native speakers, the

> sum of attested data, a collection of memorized chunks, a rule-governed discrete combinatory system, or electrical activation in a distributed network.

Their list is far from exhaustive (the authors do not claim otherwise). And, of course, these definitions are not all distinct in that several are implicationally related or apply to different levels of scale; nevertheless, it is easy to see even from this selective rendition that there are diverse views concerning language. Indeed, they are sufficiently distinctive to inform different approaches to language teaching and learning. For purposes of illustration, let me now contrast two of Cook and Seidlhofer's characterizations of language: 'language as a rule-governed discrete combinatory system' and 'language as social fact'.

The former emanates from a formal or structural view of the language system (Saussure 2016). Traditional, structural, descriptive, and generative linguistics have all adopted and contributed to this understanding of language. In language education, formal views are responsible for grammatical syllabi, in which linguistic structures are sequenced and graded according to increasing linguistic complexity or learning difficulty, as sometimes determined by a contrastive analysis between the students' L1 and L2. Formal views of the language have also inspired pedagogical practices, such as the use of pattern practice and inductive and deductive grammar exercises.

With the computational power available today, corpus linguists have contributed to our knowledge of structural patterns. They have collected and digitized vast corpora of oral and written texts, whose data can be mined via search engines to reveal patterns of lexico-grammar. For example, 'bordered' is frequently followed by the preposition 'on', and it can have a geographic reference, but it is used more often in reporting an undesirable situation (e.g. 'bordering on arrogance'; Schmitt 2009). In language education, students themselves are being taught to search corpora where they can pursue answers to their own questions about collocates and connotations and context. These patterns can then be used to construct concordances, lists of frequent words and phrases, and the contexts where they have occurred, which can inspire corpus-informed teaching (Römer 2011; Liu 2012) and data-driven learning (O'Keeffe et al. 2007). With these approaches, language students can practice attested, rather than fabricated, exemplars.

It will not be difficult to see that the view of language 'as a social fact' contrasts with a structural one. The social-fact view of language was propelled in part by Hymes' (1972) call for the goal of language education to move beyond linguistic competence to communicative competence: the knowledge of when and how to say what to whom. Focusing on language use, this view privileges language functions and meanings over language forms. Functions or speech acts, such as promising, complaining, and inviting, replace or complement the structures of grammatical syllabi and, together with semantic notions, such as modality and temporality, make up notional-functional syllabi (Wilkins 1976).[1]

In addition, a functional view of language includes how texts are organized to realize the meaning potential of language. In systemic functional linguistics (SFL), for example, language is still conceived as a system, but a system of options from which to make meaning (Halliday 1978). Choosing among meaningful options is also studied in stylistics (Widdowson 1992), genres (Swales 1990), conversational moves (Sacks et al. 1974), pragmatic cultural differences (Blum-Kulka et al. 1989), and different professional and academic contexts (Candlin and Candlin 2003).

Cognitive linguistics (Langacker 1987), too, has contributed to language education through its focus on meaning (Strauss et al. 2018), such as modality (Tyler 2012) and phrasal verbs (White 2012), and concept-based instruction (van Compernolle forthcoming). Concept-based

instruction calls for explicit instruction to promote learners' awareness and control over specific conceptual categories, known to be difficult and linked to formal properties of the language, such as the imperfect and preterit in Spanish (Negueruela and Lantolf 2006) and the *ba* construction in Chinese (Ai 2021).

In addition to endorsing communicative language teaching and notional-functional syllabi, a functional view also holds implications for teaching reading and writing (Hyland 2016; Silva and Matsuda 2010; Grabe and Stoller 2019; Fogal and Verspoor 2020) and for realizing one's educational and occupational ambitions. Of course, the dichotomy, formal versus functional, is an oversimplification. Clearly, each member of the dichotomy is far more complicated than first seems. Also obscured by such a simplifying sequential narrative is the fact that most language educators attend to both forms and functions, although a satisfactory interface between the two has been elusive. While many people accept that ultimately the purpose of learning a language is to be able to communicate, the question of whether it is better to prepare students to communicate by having them build up a repertoire of lexical items and structures or by having them launch directly into communicating has been at issue.

Having contrasted two of the definitions from Cook and Seidlhofer's list – formal/structural and communicative/functional – there remain at least three other matters to take up in order to provide a more complete picture of issues in language education. The first is a critical perspective – the view that language serves the purpose of empowerment. One way that this view has been adopted in language education is through a problem-posing approach, based on the work of Brazilian educator Paulo Freire. In a problem-posing approach, students are encouraged 'to perceive critically the way they exist in the world in which they find themselves' (Freire 1970: 64) and then to help empower students to take action and make decisions in order to gain control over their lives in that context.

With the calls for inclusion and attention given to social inequities, such as racism, native-speakerism, sexism, ageism, ableism, discrimination based on sexual orientation and non-binary identity, ethnicism, and linguicism, critical applied linguistics has assumed a more prominent role in advocating for social justice. A challenge to racism, for example, comes in the form of raciolinguistics (Alim et al. 2016), which seeks to address critical questions concerning language, race, and power.

Another challenge, this one to native-speakerism, comes from researchers of English as a lingua franca (ELF), who have maintained that English is not the province of native speakers (Seidlhofer 2001), recognizing the fact that many people will have to navigate multilingual encounters with others for whom English is not their L1. Accompanying this shift in attitude is language teaching that sets intelligibility as a goal – not conformity to native-speaker norms (Jenkins 2000). This shift, from one monolithic normative view of English to an understanding that language in use is reflective of the interactive linguistic practices of its users, also recognizes the existence of many autonomous regional dialects or world Englishes, such as Singaporean English, Nigerian English, and Indian English.

Makoni and Pennycook (2006) have made the point that languages are 'invented' – social constructions which defy the fixed boundaries of social and linguistic categories. Artificial boundaries have often been erected as a product of their colonial histories (Kubota 2016). Decolonial thinking (Mignolo and Walsh 2018) highlights the existence of multiple frameworks of knowledge in an effort to promote relational thinking and to question who has the power to say which mode of thought is relevant in a given situation. It also advocates for an approach to language education rooted in critical pedagogy and post-colonial perspectives from, for example, the Global South (Sousa Santos 2018; Guilherme and Menezes de Souza 2020).

A second issue is the current use of and, during the pandemic, dependence on new technologies that has brought remote learning to the forefront of language education. While computer-mediated language instruction has existed for some time, the recent accelerated use of remote and blended learning, virtual reality, and artificial intelligence is clearly an example where the interconnectedness with the external world has had a profound effect on language and its teaching and learning in relatively short order.

Besides expanding access, these new technologies open classrooms to multimodal communication (Sherris and Adami 2019). With digitized tools, learners can combine speech with text, pictures, emoticons, and other visual cues into new intersemiotic relationships (Hampel 2019), using fan fiction (Sauro 2019), video games (Gee 2007), and other means of informal language learning through technology. When students use technologies to establish and maintain social networks extramurally, language is not just a set of abstract rules but is used in authentic communication, often in collaboration with other than the usual assembly of teachers and students in classrooms. Consequently, classrooms are no longer seen as the only places in which to learn language, hence the popularity of study-abroad programs, other extramural learning or 'language learning in the wild' (Eskildsen and Theodórsdóttir 2017), and online language learning programs, such as Babbel, Duolingo, and Rosetta Stone.

A third related issue concerning language is the sometimes fraught question concerning which language to teach, as dictated by language policy (e. g. Hult 2014). Such decisions have real-life consequences, of course. For instance, in an attempt to equalize education in Hong Kong, the government mandated that all instruction be in Mandarin rather than English or Cantonese. Ironically, wealthier students actually became more advantaged because they had greater access to English through private tutoring and study abroad programs (Poon 2013), which, contrary to the intentions of the authors of the policy, widened the gap in scores on college entrance examinations by income. Many language educators wrestle with these same issues. For example, when designing instruction in Arabic, designers have to choose which dialect of spoken Arabic to offer, as the dialects vary substantially from one another and from the modern written standard.

Another issue confronting language educators these days is the fact that many of the world's languages are endangered. Whereas language education in some countries has brought certain languages, such as Irish Gaelic, back from the brink, the rate at which other languages are dying out is worrisome. Concerted efforts to teach these languages to children, often undertaken by Indigenous peoples in an attempt to preserve their culture, are being made, for without them, revitalization efforts will be unsuccessful, and the languacultures will be lost forever.

What is learning? Who are the learners?

Turning now to the second angle of the triangle, consider the question 'What is learning?' Again, many answers to this question have been proffered. Certainly the most prominent answers in recent memory have been drawn from the theories of behaviourism, innatism, interactionism, constructivism, and emergentism.

One eminent behaviourist (Skinner 1957) contended that learning takes place through operant conditioning. Learner behaviour is selectively reinforced in order to condition a voluntary response to a particular stimulus. Structural linguists, such as Bloomfield (1942), introduced the idea that learning takes place through habit formation. Learners practice the new patterns of the target language so thoroughly that they can choose the appropriate forms of the language while focusing their attention on the meanings they wish to express. Practices such as

'mimicry-memorization' (Bloomfield 1942) and pattern and dialogue practice (Fries 1945) became common and are still widely implemented.

Innatism was ushered in by Chomsky (1965). Chomsky questioned how it was possible for a child learning its native language to induce the rules necessary to produce grammatical sentences, given the limited time and the impoverished input to which the child had access. There had to be, he reasoned, some innate faculty, a language acquisition device (LAD) that guided the child in the language acquisition process. Researchers seek to establish the principles of the innate faculty or universal grammar (UG) and to discover whether they are still accessible during second language acquisition (SLA), in which case learners would then only have to reset their parameters (White 2003; Rothman and Slabakova 2018).

Chronologically, interactionism followed thereafter. Interactionists (e.g. Snow 1979) believe that it is not necessary to appeal to an innate LAD to explain the facts of native language acquisition. They could instead be accounted for by looking closely at the interaction between the child and its caregivers and the support the latter provides. For instance, even neonates engage in 'conversations' with their caregivers, with the latter making particular accommodations (e.g. using 'child-directed speech') to facilitate language acquisition. The interactionist explanation has been extended to SLA (Pica 1994; Gass 1997; Long 1996; Mackey 1999). As speakers and learners of the target language interact, language acquisition takes place, provided that the speakers accommodate the learners, thereby making the input easier to comprehend (Krashen 1982) and process (VanPatten 1996).

In language education, interaction drives the use of meaning-based or task-based syllabi. Task-based syllabi call for language students to engage in meaningful communication, such as using a map in order to give L2 directions to some geographical point of interest. The goal is not to focus upon language forms or functions explicitly, but to solve some problem or to accomplish some task (Long and Crookes 1992). Out of the interactions involved in performing the tasks, with a non-intrusive focus on form, communication occurs (Ellis 2003; Nunan 2004; Prabhu 1987). Task-based language teaching (TBLT) has become an important vehicle in communicative language teaching (e.g. Samuda and Bygate 2008).

While not proposed for language education, in particular, another approach that is appropriate to include here is constructivism (Dewey 1916). Constructivism is based on the principle that learners actively construct their knowledge by drawing on their lived experience. In order to do so, learners use skills such as observing, inferencing, noticing, predicting, reflecting, comparing, and theorizing. Sometimes a combination of these is referred to as 'discovery learning'.

Although neither devoted his scholarship uniquely to language education, two influential constructivist pioneers were Piaget and Vygotsky. The former was centrally concerned with how children come to know what they do. Piaget (1936) believed that in order to learn, a child must operate in a learning environment that meets the developmental and individual learning constraints that are commensurate with the child's age. The importance ascribed to this 'readiness to learn' is foundational to SLA's processability theory (Pienemann 1998), which holds that language learners adhere to a particular developmental schedule in acquiring syntax and morphology. Vygotsky's sociocultural theory (1934 [1978]) has been appropriated in language education by Lantolf and Thorne (2006), among others. Vygotsky proposed that development is advanced through social interaction in a zone of proximal development (ZPD). The ZPD is defined as the interval between what an individual can do on their own and what the same individual can do with the support of someone more knowledgeable. Other scholars, such as Wood et al. (1976), building on sociocultural theory, contributed the important concept of 'scaffolding' – the idea that a teacher can provide tailored support to a learner, such as modelling a task or leading

students through dialogic inquiry (Donato and Adair-Hauck 2016) – support which is gradually withdrawn as learners display an ability to complete the task on their own.

A more recent contribution to language education, sees language and its learning from a complexity theory or dynamic systems theory perspective (Larsen-Freeman 1997; de Bot et al. 2007; Ortega and Han 2017; Hiver and Al-Hoorie 2020) as a complex adaptive system (Ellis and Larsen-Freeman 2009). Such a view can be categorized as emergentist (Ellis and Larsen-Freeman 2006; MacWhinney and O'Grady 2015; Kretzschmar 2015). Also rejecting the idea of the need to posit innate rules, emergentists argue that humans are well-suited to perceive and to assimilate the patterns in the language spoken to them (and therefore the input is not as impoverished as Chomsky maintained). Emergentists have demonstrated that both children learning their native language (Tomasello 2003) and adults learning a second language (Ellis and Ferreira-Junior 2009) can 'bootstrap' their learning by attending to frequent and salient constructions in the language to which they are exposed. This process involves exapting constructions from any language that learners have experienced and assembling them in a kind of bricolage (Lévi-Strauss 1962) in order to make meaning and to represent themselves as they intend and are able (Canagarajah 2013).

When applied to second language learning, complex dynamic systems theory (CDST) suggests that a full understanding of development needs to replace computer input-output models with more situated, experiential, and ecological views, which foreground embodied learners engaging with the affordances in the social environments they inhabit to interact and make meaning, and indeed to create new meaning (Larsen-Freeman and Cameron 2008; Stelma and Kostoulas 2021).[2] Language learning is a sociocognitive process, in which learners attune their linguistic performance to the patterns in the environment (Atkinson 2011). This way of looking at learning finds empirical support in the architecture of the brain. With each new instance of meaningful language the learner encounters or uses, certain neural connections are forged, others strengthened, and still others atrophy, creating a dynamic, interconnected network of language-using patterns in memory.

Two other theories that fit this emergentist category are usage-based and statistical learning. Featuring language as a dynamic system, usage-based theorists have adduced considerable evidence that it is learners' meaningful interaction in their entire history of language usage (Ellis 2015), which results in their learning the patterns and learning to use them to create new ones. In this same spirit, Hopper (1998) writes of 'emergent grammar', grammar being the 'sediment' that is laid down by recurrent patterns in discourse. In other words, rather than a grammar imposing top-down rules; its variegated structures are built up, layered by usage. Usage-based theorists assert that language has a fundamentally social function – human interaction. This interaction, along with general cognitive capacities, such as having capacious memories, an inferencing ability, and an ability to perceive, create, and generalize patterns, shape the structure and our knowledge of language. Closely aligned is statistical learning, the learning of language from distributional properties in the input (Christiansen 2019).

Language learners

Moving on to the question of 'Who are the language learners?' it should not be surprising that any answer to this question is not simple either. Certainly even a cursory response to this question would appreciate the diversity of language learners and include their ages, the languages that they know (spoken or signed), and their individual differences. Taking these one at a time, starting with age, it was hypothesized by Lenneberg (1964) that there is a critical period for language acquisition, usually ending around the time of puberty, after which a first language is

no longer acquired in the same way. Most applied linguists accept that there is no absolute age threshold for SLA, but they do point to the decrease in brain plasticity or fine motor control of the vocal apparatus to hypothesize the apparent differences between the learning of languages by younger and older learners and the differential success of the latter, if only in the area of pronunciation. There are also likely multiple linguistic and cognitive maturational changes or sensitive periods over the course of adolescence (Harklau 2021) rather than any one unitary or definitive critical period for language acquisition (Muñoz and Singleton 2011). Moreover, age alone may not be as influential as the context when it comes to attainment (Pfenninger and Singleton 2019).

Furthermore, it is not likely that adult learners approach the challenge of learning another language in exactly the same way that children do, if only because the circumstances surrounding the learning are discrepant – the time allotted and the explicit instruction adults usually receive (Leow 2015) – in contrast to children typically learning implicitly. Nevertheless, the fact that the critical period hypothesis is controversial has not discouraged governments around the world from mandating earlier and earlier starts to foreign language education.

In addition, it is also well-known that the L1 can make an impact on the way that the L2 develops. The strongest statement is the Sapir-Whorf hypothesis, which proposes that language determines thought. A more modest proposal is 'thinking for speaking' (Slobin 1996). For Slobin, the native language does not determine thinking but instead acts as a filter through which the world is perceived and registered. Even advanced second language learners, while otherwise producing accurate L2 utterances, may show evidence of L1 syntactic patterns. Indeed, studies in contrastive rhetoric (Kaplan 1966; Connor 1996) reveal how an individual's L1 affects writing in the L2, and Han (2004) has traced many persistent errors in the L2 to L1 influence. MacWhinney (2006) attributes the L1 patterns cloaked in L2 words to the 'neural commitment' that L1 speakers have already made to their native language.

An increasing number of learners' individual differences have been identified and studied for their influence on language learning. Originally discussed were four individual differences (Schumann 1976), Spolsky (1989) discussed 74, and now there are likely hundreds, as the list keeps expanding, prohibiting my providing a complete inventory in this chapter. One way of accounting for all these is the taxonomy that Li et al. (2022) created. In their taxonomy of individual differences they grouped factors into categories as cognitive factors (language aptitude, working memory, declarative/procedural memory, learning strategies, cognitive styles, and metacognition), conative factors (motivation, mindsets, goal complexes, and willingness to communicate), affective factors (anxiety, enjoyment, self-efficacy, and learner beliefs), and sociodemographic factors (age and identity). Despite the large number, there remain populations of language learners who have not been systematically studied (Ortega 2019), such as non-literate learners (Tarone et al. 2009), so the lists will expand.

Acknowledgement of these individual differences surfaces a critical question in the field of language learning and language education: To what extent is it possible to make generalizations about learners apart from the context, circumstances of, and reason for their learning? And, relatedly, in the quest to generalize about individual differences, are intra-category differences significant? After all, even many of these 'individual differences' are studied at the group level, and it is well-known that group statistics do not generalize to the individual (Lowie and Verspoor 2019).

To take into account individual differences among learners, some educators have called for *learner-centred* teaching, differentiated instruction, and culturally responsive teaching (in which learners can draw on their 'funds of knowledge' from their own cultures [Moll 2019]). An example of a teaching practice that allows for students' identity, agency, and power to be enacted is project-based learning (PBL) (Fried-Booth 2002). PBL encourages students to

move out of the classroom and into the world. Indeed, too often, language learners have been ascribed a somewhat passive role by theorists (Larsen-Freeman 2019), and their autonomy (Benson 2007), self-regulation (Comanaru and Noels 2009), and agency overlooked.

It is also common knowledge that there is a great deal of variability in any single language learner's performance (Lowie and Verspoor 2015). Given the number of factors involved and the fact that they interact, dynamically influencing a learner in different ways at different times (for instance, motivation is not a steady-state factor, but it characterized by ebbs and flows [Dörnyei 2009]), the question then becomes whether or not the variability is limitless and the experience of each individual learner unique. Perhaps if we are content to talk about tendencies, patterns, and contingencies rather than absolute predictions and generalizations, then there may be some observations that supersede the individual level while still acknowledging the uniqueness of individuals' developmental trajectories. The complexity calls for *learning-centred teaching*, where teachers teach in response to what students demonstrate they have not yet learned and are interested in learning.

What is teaching? Who are the teachers?

Traditional view

In the third angle is the question 'What is teaching?' As readers will have come to expect, there are different answers to this question as well. A traditional view of teaching has been characterized as 'knowledge transmission'. In this *teaching-centred* view, teachers are seen to be responsible for transmitting what they know to their students. Freire (1970: 72) has referred to knowledge transmission in terms of a banking metaphor: the teacher makes deposits of information into students who are to receive, memorize, and repeat them. Whatever its reputation today, it should be acknowledged that such transmission remains a common practice in many parts of the world. And, no doubt, a skilled teacher's organization of knowledge can help students understand and remember what has been transmitted.

Skill-acquisition theory builds on the traditional present, practice, produce (PPP) sequence when it comes to grammar teaching. It posits that acquisition of a skill starts with declarative knowledge, or 'knowledge about', that is conscious knowledge of a target language rule, which then gets proceduralized and automatized into 'knowledge how'. In other words, this position holds that with appropriate, meaningful practice (DeKeyser 2007), explicit knowledge of a grammar rule can be proceduralized and can then be put to use by learners.

Content-based teaching/CLIL/genre-based teaching

With an eye especially trained on recent arrivals who have to learn the language of their new homes in order for the adults to find employment and for the children's education not to be delayed further, content- or competency-based teaching has been adopted (Snow and Brinton 2017; Genesee and Lindholm-Leary 2013). The sheltered instruction observation protocol (SIOP) represents a framework for teaching school subject content and language in mainstream classes to English language learners (e.g. Echevarría et al. 2017). In competency-based teaching, students, often enrolled in adult education programs, study the language forms and functions necessary to meet their needs, such as finding a place to live, the names of foods they prefer, and how to enrol in any assistance program, as needed.

These days, content and language integrated learning (CLIL) (Coyle et al. 2010) is being implemented in many countries as a way to integrate foreign language learning into the

curriculum of all children. Similarly, at the tertiary level, an approach to the teaching of English has been called English as a medium of instruction (EMI). EMI is the use of English to teach academic subjects in English in places where English is not spoken natively (Macaro 2018). Of course, the focus of instruction for some adult students is frequently different from academic concerns. Their goal for studying a language may be occupational or technical.

In the UK, Hong Kong, New Zealand, and Australia, in particular, genre-based approaches integrate a focus on language with subject-matter instruction (Hinkel 2013). The approach draws on SFL and genre theory and highlights the features used in a diverse range of spoken and written genres, such as language used in textbooks, academic speaking and writing (Schleppegrell 2004), and subject matter assignments that require both reading and writing (Derewianka and Jones 2016; Gebhard 2019).

Bilingual education

Bilingual education has been an educational option in the US to support minoritized students in acquiring English while maintaining their heritage language and not falling behind in other school subjects. However, bilingual education fell into disfavour and was abolished in certain states due to political campaigns that promoted the idea that bilingual education was failing students because they never fully acquired either language. As a consequence, national curriculum standards in English-dominant societies, with few exceptions, reinforce English monolingualism in both instruction and assessment (Kibler et al. 2014; Leung 2016), even though multilingualism is the norm across most of the world (May 2014).

Most recently, bilingual education has regained popularity in the US, especially in the form of two-way or dual-language immersion; however, notably, this popularity is often due to the parents of English-speaking children who see the competitive advantage their offspring enjoy if they can add knowledge of another language to their credentials, sometimes certified with a 'seal of biliteracy' appended to their diplomas. For a similar reason, the parent-elected teaching of French through immersion in Canada has long been popular and has been emulated in other countries.

Translanguaging

It is recognized that language learners' sense of personal and cultural identity is strengthened when they can make use of their full repertoire of language resources (Duff 2015). Thus, translanguaging (García and Li Wei 2014) advances a social justice agenda, challenging the ideology of monolingualism (Flores 2013). Translanguaging refers to the fluid interrelated social practices of bilinguals Cenoz and Gorter (2017), Seltzer and García (2020), Leung and Valdés (2019), and Li and Lin (2019), among others, consider translanguaging to be part of normal classroom discourse. Of course, just as with any other pedagogical innovation, context matters (Fortune and Tedick 2019).

Calls have also grown for multilingual assessments, where students can demonstrate what they know in the several languages they have learned (Shohamy 2017; Gottlieb 2021). Formative assessments also include self-referential assessment (Larsen-Freeman 2014) – assessing students for what they can do now that they could not do before – and dynamic assessment (Poehner 2008), where students are assessed before and after a pedagogical intervention.

Like translanguaging, plurilingualism acknowledges that being able to use more than one language is an asset (Larsen-Freeman and Todeva 2021), and it opposes a compartmentalized view of language. In addition, it recognizes that border-crossings take place not only between languages, but among 'multiple and dynamic varieties of these different languages

and literacies – vernacular, formal, academic, as well as those based on race, ethnicity, affinity or affiliation, etc.' (Hornberger and Link 2012: 263; Rampton 2017).

Instructed second language acquisition (ISLA)

The area of the field known as instructed SLA, or ISLA (Loewen 2020), has been defined by Nassaji (2016) as one that investigates not only the effects but also the processes and mechanisms involved in any form-focused intervention (explicit or implicit) with the aim of facilitating language learning and development. Given its form-focus, ISLA research typically centres not on open-ended/unscripted communicative tasks but rather where students have the opportunity to attend to language form (Willis 1996; Ellis 2009) so that both fluency and accuracy receive attention.

A second area of ISLA research has to do with the provision of feedback to learners on their linguistic performance. Indeed, a major issue in the field for some time has been the matter of error correction (Pawlak 2014) or providing learners with corrective feedback on their linguistic performance. Whereas a habit-formation view of learning advised teachers to control the language being introduced in order to prevent errors from being made, and others raised concerns that feedback might cause debilitating anxiety in students, these days, giving students feedback is a valued pedagogical practice. However, it is unlikely that one feedback strategy is better than others for all occasions. Therefore, which feedback strategy to use on a particular occasion is a matter of determining what works at that moment for that learner. One bit of guidance is the use of 'learner-driven feedback' (Maas 2017), where students have a voice in how they receive the feedback.

Other ISLA foci include investigating various ways that students' attention can be directed so that they notice features of the language they are studying Schmidt (1990). One strategy that has been explored in this regard is the value of input enhancement, using textual features, such as boldfacing, or oral language features, such as stressing, to draw students' attention to particular aspects of the language, such as verb-tense morphology (Bardovi-Harlig 2000), students might otherwise overlook.

Language teaching materials and curricula

Attempts have been made to understand the effect of language teaching materials on language education, given materials' powerful influence on interaction in the classroom (Guerrettaz and Johnston 2013). Indeed, Matsumoto (2019) points out that these materials not only influence classroom discourse in shaping students' participation, but they also control the curriculum. At the tertiary level, Byrnes (2019: 525) calls for adopting a complexity theory lens for curricular thinking, and Larsen-Freeman (2003) writes of organic syllabi.

Tomlinson (2012: 171) observes an important role for teachers is personalizing and localizing the materials. In fact, perhaps the most important role for a language teacher is that of mediator between the textbook/curriculum/content and the students, in order to address the multifarious needs of the present class.

Language teachers

It is well-accepted that a teacher is the lynchpin to successful classroom learning (Hattie and Anderman 2020). It is also true that good language teaching has been exceedingly difficult to define, except at a rather abstract level – perhaps because of decontextualized universal attempts to do so. At the very least, teacher educators set out to understand what teachers do

and how the make sense of it (Freeman 2016; Kubanyiova and Feryok 2015; Hall and Looney 2019) and the effect of their own teacher education practices (Johnson and Golombek 2016).

Although teaching does not cause learning, what contributes significantly to it is the positive relationships that teachers are able to establish with their students. For this reason alone, it is worth noting the challenges in establishing relationships that language teachers must contend with. They work with newly displaced refugees or immigrant children, children with special needs (sometimes attributed to the trauma that they have experienced), students who have had their in-class lessons suspended, and some who have not had access to the technology for online teaching or, even if they do, have not shown up for their online lessons – not to mention the challenge the teachers faced in learning to teach remotely, almost overnight.

Contributing to the complexity is the fact that different methods of learning and teaching confer different roles on language teachers (Larsen-Freeman and Anderson 2011). While some say today's times call for us to move beyond methods, adopting post-method macrostrategies in place of prescribed and proscribed methodological practices (Kumaravadivelu 2006), the fact is that a study of methods helps most novice teachers develop their own principled eclectic form of teaching.

Playing a role in what teachers do is their 'sense of plausibility' (Prabhu 1990), their values and beliefs (Borg 2009; Hall 2010), formed by their own experience as students – an 'apprenticeship of observation' (Lortie 1975) – which is a powerful influence on the way that teachers teach – at least when they are novices. De Costa and Norton (2017) highlight the need to recognize the rich linguistic and personal histories that language teachers themselves bring into the classroom. For instance, they may believe the purpose of learning another language is to communicate, but their own language learning experience might be with a more structural approach. Then, too, the spectre of preparing students for a high-stakes standardized examination may discourage teachers from teaching students to communicate (Sun and Zhang 2022).

Another widespread role ascribed to teachers is that of 'reflective practitioner' (Schön 1983), someone who can detach oneself from experience, examine it, and learn from it (Richards and Lockhart 1994; Gao 2013; Farrell 2014). One way of doing so is for teachers to use 'action research', which requires them to systematically act on and then reflect on some aspect of their teaching (Burns 2019). Another reflective practice is Allwright's (2003) 'exploratory practice', where teachers are encouraged to experiment, to take risks around some particular issue of interest in their teaching practice. They are then to step back and observe what happens.

A recurring contentious issue is the widespread belief among non-professionals that if one can speak a language, one can teach it. This is known to be false, although in truth little is known about the amount of training that is optimal or the way it should be distributed – that is, the pre- versus in-service trade-off – with some arguing that a lengthy time spent on pre-service education before novice teachers step into the classroom is not productive and that, at a minimum, learners of teaching should undergo a supervised teaching practicum (Bailey 2006).

With the migration of the world's population on the rise, one of the current and likely-to-be-future issues is how to prepare general education teachers to support the complex needs of students being taught and expected to learn school subjects through a language that is not their native tongue (Bailey et al. 2008). General education teachers likely have been educated in the subject matter content they teach, not language as the vehicle of that content (Larsen-Freeman and Tedick 2016). Unfortunately, being a 'good' teacher without the specific training in language is not good enough to overcome the persistent inequity in the education of multilingual students, despite teachers' best intentions (de Jong and Harper 2005; Schleppegrell 2018). And one-off professional development opportunities do not suffice either. The fundamental problem is that general education teachers' identities as content teachers result in their privileging

disciplinary content over opportunities for language development (Molle 2021). According to Molle, one promising approach for addressing this problem is the academic literacies approach (Lea and Street 2006; Gee 2015), which bridges divisions among different disciplines, highlights the interconnections between content and language, and situates content and language learning within the context of social practice.

All this is not to deny the complex nature of the process of language and content integration (Tedick and Lyster 2020). And the problem is bidirectional, of course: it can be the case that language experts do not have the content knowledge that they need to teach school subjects in any depth. One solution has been to pair teachers possessing content expertise and those with linguistic expertise to team-teach the same class, although not necessarily at the same time. A version of this in higher education is called the adjunct model, where language teachers attend lectures with their students and then subsequently help the students to process the lecture.

Although Griffiths (2021) has pointed out that language teachers have been left behind in the focus on language learners, this pattern is clearly shifting, with a host of books and special issues on language teachers having been recently published: Miller et al. (2018); Mercer and Kostoulas (2018); Griffiths and Tajeddin (2020); Mercer and Gregersen (2020); and Sampson and Pinner (2021).

Conclusion

In this chapter, I have highlighted some of the issues in language education, without making this chapter one lengthy list (although it may still seem so to readers). In the place of a list, I have offered readers what I have found to be a useful heuristic for organizing developments in the field – namely, a set of questions. The truth is that all the questions, which have yielded different answers in different places at different times, have implications for language education, though no question and answer or combination of questions and answers will produce a satisfactory solution for all times and places (Toth and Moranski 2018) due to local social, political, and economic factors, the uniqueness of individual language learners, teachers and instructional contexts, ever-new research findings, and the theoretical commitments educators make.

I have aimed to give context its due in language education. Using Smith's (2005: 296) words and appropriating them for this chapter, I can say that language education is 'the emergent product of many heterogeneous systems bound to each other and to the world in real time'. Thus, 'a key element of an ecological perspective', as Clarke (2007: 24) makes clear, 'is the awareness of the interconnectedness of individuals, institutions, and communities – systems within systems within systems'.

Related topics

second and additional language acquisition across the lifespan; language teaching and methodology; language and culture; sociocultural approaches to language development

Notes

1 Although the effect on language education of the following theorists has been more limited, worth including in this discussion of the social dimension of language are philosophers Wittgenstein (language cannot be considered apart from its use), Austin and Searle (speech act theory), Bakhtin (the dialogic nature of language), and Foucault (how power is used to control knowledge); sociologists Bourdieu (the connection of language and power) and Garfinkel (ethnomethodology); and sociolinguists

Gumperz (the acknowledgement of the differential power according to speech prestige dialects in speech communities) and Labov (language variation across social groups and within individuals, the latter depending on the attention speakers give to what they are saying).

2 Also adopting a more dynamic approach to language and its learning, see Piccardo and North's (2019) Action-Oriented Approach and Bangou et al. (2020) Deleuzo-Guattarian perspectives.

Further reading

Celce-Murcia, M., Brinton, D. and Snow, A. (eds.) (2014) *Teaching English as a Second or Foreign Language*, 4th ed., Boston, MA: National Geographic Learning/Cengage Learning. (Chapters in this anthology provide an in-depth discussion of specific language teaching areas and skills.)

Douglas Fir Group. (2016) 'A transdisciplinary framework for SLA in a multilingual world', *The Modern Language Journal*, 100 (Supplement 2016): 19–47. (This multi-authored article discusses the changing nature of language learning and education in a multilingual world. For its relevance to language teacher education, see Johnson, K. E. (2019) 'The relevance of a transdisciplinary framework for SLA in language teacher education', *The Modern Language Journal*, 10: 167–174.)

Larsen-Freeman, D., Driver, P., Gao, X. and Mercer, S. (2021) *Learner Agency: Maximizing Learner Potential*, A Position Paper, Oxford: Oxford University Press. (The paper features teaching practices to enhance learner agency.)

Larsen-Freeman, D. and Tedick, D. (2016) 'Teaching world languages: Thinking differently', in D. Gitomer and C. Bell (eds.), *AERA Handbook of Research on Teaching*, 5th ed., Washington, DC: American Educational Research Association, pp. 1335–1388. (This chapter calls for greater attention to be given to language teaching in the US and offers a guiding vision for it.)

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2

Second and additional language acquisition across the lifespan

Lourdes Ortega

Introduction

All humans have the capacity to learn additional languages during late childhood, adolescence, or adulthood once the first language (in the case of monolinguals) or the first languages (in the case of bilinguals and multilinguals) have been acquired. The field of second language acquisition (SLA) is a branch of applied linguistics that investigates how people learn an additional language (often called a second language, or L2) when the learning starts at any age beyond infancy and early childhood, in contexts beyond child-rearing. The study of additional language learning from an SLA perspective focuses on four overarching questions:

1 How do humans learn additional languages after they have learned their first?
2 In what ways is the learning of an additional language different from the learning of languages for which exposure is available during very early childhood, and in what ways might it be similar?
3 What factors contribute to the variability observed in rates and outcomes of additional language learning?
4 What does it take to attain advanced language and literacy competencies in a language that is learned later in life?

The focus on additional language learning by SLA researchers is in complementary contrast to efforts at explaining human language development in two other fields that study early-timed language acquisition, from the womb to right before children enter school or, broadly speaking, during the first six years of life. One field is first language acquisition, also known as child language acquisition, which investigates how infants learn their first language monolingually, when they grow up surrounded by one language only (Rowland 2014). The other field, bilingual first language acquisition (BFLA), examines language development among infants and young children when they grow up surrounded by two or more languages – either strictly from birth or at least very early, around life-shaping events such as entering day care or preschool (De Houwer 2021). BFLA is in fact how the majority of children learn language.

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SLA theories in historical perspective

Scholars have written about how to best teach foreign languages since ancient times. When in the late 1960s SLA emerged as a formal research community, it did so shaped by this long-standing interest in language pedagogy, but also in response to two trends at the time: a rejection of the prevailing behaviourist view of language acquisition and an excitement at the empirical findings about how children who grow up monolingual learn their mother tongue (e.g. Brown 1973). After L2 learning was established as a novel and distinct object of inquiry, several broad phases ensued. The narrative depiction of orderly historical trends in the history of SLA that follows in the next sections is only a convenient short-hand that undoubtedly obscures more complicated developments.

The awakenings of SLA: interlanguage

The years 1967 and 1972 marked the publication of two seminal papers by Pit Corder and Larry Selinker that are often associated with the awakenings of the field because of the importance of the arguments they put forth. At an empirical level, they called to question the dominant practice of contrastive analysis, which looked for acquisition answers in the exhaustive comparison of the linguistic inventories of the language pairs involved in the learning task, the first language and the target language. Instead, Corder (1967) and Selinker (1972) argued researchers must turn for evidence to the actual language produced by learners as they try to communicate in the target second language (L2). This meant examining the 'errors' learners produce not as something to be pre-empted or remedied but as objects of study that hold great value for understanding L2 acquisition. At the theoretical level, the behaviourist view of language acquisition as mere habit formation was rejected and replaced by a novel conceptualization of acquisition as creative construction. For the first time, adults learning an additional language were viewed as active and rational agents who engaged in the discovery of underlying L2 rules. They formed hypotheses about the language, tested them, and employed a number of cognitive and social strategies to regulate their learning. These developments made interlanguage investigations during the 1970s and 1980s increasingly more focused on cognitive and psycholinguistic aspects of additional language learning. Nevertheless, a few SLA researchers also working within the interlanguage tradition turned their attention to exploring the potential of quantitative sociolinguistic theories of variation for the study of L2 development (e.g. Tarone 1988). An even smaller minority drew from Vygotskian theories of child development to call for other ways of framing additional language learning (e.g. Frawley and Lantolf 1985).

From first theories to the cognitive-interactionist and formal linguistic emphases of the 1990s

By the early 1980s, the first attempt at a theory of L2 acquisition was mustered in the United States by Stephen Krashen (1985). Known as the monitor model, it became (and has remained) popular with language teachers. In a nutshell, Krashen proposed that (1) the core ingredient of additional language learning is meaningful, comprehensible input; (2) the processes of additional language acquisition are implicit and subconscious, and any explicit and conscious processes that may be summoned in the classroom can only help careful monitored performance but will have little effects on true language knowledge or on spontaneous performance; and (3) the main obstacles to additional language learning for adults stem from affective inhibitions.

Despite its popularity, already in the mid-1980s the monitor model was evaluated as being too metaphorical to lend itself to proper empirical investigation. Today, some scholars think that the original concepts have made their way into newer constructs (Lichtman and Van Patten 2021), while others have explained how the original and the new concepts should not be equated because they differ in crucial ways (Kinginger 2001).

As the decade of the 1980s came to a close, and then during the 1990s, two views of L2 learning became well established as theoretical choices. One was a broad cognitive-interactionist prism that emerged out of ideas about human development by Swiss psychologist Jean Piaget. It easily accommodated within it the interlanguage research tradition and the monitor model, albeit both under newer, more contemporary formulations. Cognitive-interactionist SLA researchers called for the examination of L2 acquisition as the sum contributions of learner-internal factors, such as attention and memory, and learner-external factors, such as the interactions learners experienced in the target language and the quality of any formal instruction they might seek (e.g. Doughty and Long 2003). Krashen's (1985) view that L2 acquisition occurs within dimensions defined largely by input and affect and operating mostly at the unconscious level were no longer considered viable as formulated, but cognitive interactionism recognized the importance of experiencing language (i.e. input and interaction), the highly emotional nature of additional language learning (i.e. motivation and affect), and the need to understand the contributions to learning from unconscious or automatized processes and conscious or effortful ones (i.e. implicit and explicit knowledge) (e.g. Gass and Mackey 2012). Within the approach, a well-received explanation to this date has been skills-based acquisition, which holds that learning an additional language is a complex, cognitive process similar to any other human learning (cooking, playing chess, riding a bike, thinking mathematically, knowing history); as such, it starts with the development of sufficient declarative knowledge about the language and must include great amounts of experience aided by attention and memory – that is, sufficient deliberate practice to eventually support fully automatic use of language (DeKeyser and Criado 2013).

The other dominant view that consolidated by the early 1990s was a formal linguistic SLA prism that was strongly influenced by US linguist Noam Chomsky. It sought to explain the mental grammar of second language learners as a product of two forces that guide tacit language knowledge formation and that are independent from other cognitive operations, and even relatively independent from surrounding ambient experience: (1) abstract knowledge of Universal Grammar (which the human species is endowed with at birth) and (2) more specific knowledge of a given first language (which is imprinted in the mind of language users during the critical years of learning a first language or languages) (Slabakova 2016; see Wakabayashi, this volume).

The cognitive-interactionist and the formal linguistic traditions have enjoyed continuity at both empirical and theoretical levels up to the present day, thus leading to considerable accumulation of disciplinary knowledge in the areas to which they have been applied. Already in the mid-1990s, however, two new theoretical forces joined the field and began new SLA traditions that soon would grow in vitality. One was the study of L2 acquisition through the sociocultural theory of mind developed by Russian psychologist Lev Vygotsky, a contemporary to Piaget, and led in SLA by James Lantolf (Lantolf 1994) (see Thorne and Tasker, this volume). The other was the application of the usage-based, emergentist family of theories developed in cognitive science and initiated in SLA by Nick Ellis (1996) and Diane Larsen-Freeman (1997). The co-existence of the two better established approaches with the two young but bold newcomers created epistemological tension and led to the gradual articulation of differences among the affinities and discontinuities between the two pairs.

Language learning under sociocultural vis-à-vis cognitive-interactionist theories

Cognitive-interactionist and sociocultural SLA are both psychologically oriented, and as such, both consider the learner's mind and the surrounding environment as essential dimensions of inquiry into adult language learning. They differ radically in their position as to how the two should be investigated.

For the cognitive-interactionist approach (well synthesized by the contributions in Gass and Mackey 2012), mind and environment are analytically separable, and the influences stemming from one or the other should be isolated as learner-internal and learner-external factors, so that their interactions can then be investigated. Mechanisms that explain how the linguistic data available in the surrounding external environment are used for internally driven learning invoke cognitive constructs, such as *noticing*, when new features of language become available, even if most fleetingly, for conscious recognition. Environmental constructs of importance include *negotiation for meaning*, when interlocutors edit and reformulate their own and each other's language as they strive to make themselves understood, and *negative feedback*, when interlocutors wittingly or unwittingly offer potential evidence that a language choice may not be sanctioned by the speech community.

By contrast, for the Vygotskian sociocultural approach (well synthesized by the contributions in Lantolf et al. 2018), mind is irrevocably social, and therefore, it can only be investigated holistically in the unfolding process of social action and interaction. Learner internal and external factors must be studied as inseparable. The construction of new knowledge (including knowledge of an additional language) arises in the social plane and gradually becomes internalized psychologically by the individual. Mechanisms that explain how new linguistic knowledge and capable behaviour come about invoke social processes, such as *mediation* of activity by language through *private speech* (audible speech directed to the self), *social speech* (speech by more expert others with the aim to help regulate action by novices), and *inner speech* (inaudible speech directed to the self for self-regulation). Another important construct related to learning is the *zone of proximal development*. This refers to an emergent quality of collaborative social action by which knowledge that by itself would be above the current competencies of one or more of the participants becomes momentarily attainable through joint context-sensitive collaboration, thus potentially being available for individual, independent use at a later point.

Emergentist vis-à-vis formal linguistic SLA

The formal linguistic approach and the emergentist approach to SLA, too, exhibit key differences amidst critically intersecting interests. Both are vested in explaining language development as part of cognitive science, but they clash in their incompatible assumptions about what human language is and about the relative contributions that nature and nurture make to its development.

Formal linguistic SLA researchers (Slabakova 2016; Wakabayashi, this volume) adhere to radical nativism, modularity, and rule-based representationism. That is, they believe language is a biologically given faculty unique to the human species (*nativism*), operating independently from other cognitive faculties used to learn and process other kinds of knowledge (*modularity*), and encoded as a system of abstract rules of the sort that has been described in formal linguistic grammars (*rule-based representationism*). By contrast, emergentist, usage-based SLA researchers (N. Ellis 2019) are empiricist, generalist, and associationist. In other words, they

hold that language in each individual emerges out of massive amounts of experience with the linking of form and meaning through language use that is driven by the species' social need to communicate (*empiricism*), enabled by simple memory and attention processing mechanisms that are the same employed for all other cognitive functions (*generalism*), and self-organized out of the human brain's unique capacity to implicitly and mandatorily tally the statistical properties and contextual contingencies of the linguistic input they experience over a life time (*associationism*).

SLA after the social turn

The tensions briefly outlined in the two previous sections were only the tip of the iceberg of a wider social turn (Block 2003), which continued to gain momentum in the late 1990s and 2000s. Not only Vygotskian socioculturalists but also many other scholars from the wider field of applied linguistics criticized the SLA research community for investigating L2 acquisition in a-social and de-contextualized ways (e.g. Firth and Wagner 1997). The crisis fuelled by the social turn has left the field richer in theories and approaches.

Among the most important contributions of the social turn in SLA, we now find less cognitively and more socially minded approaches that seek to re-specify in social terms all key elements in the SLA equation. Thus, if Vygotskian SLA already beginning in the mid-1990s offered a re-specification of *cognition* as fundamentally social (Thorne and Tasker, this volume), since then, other SLA theories have contributed formal ways of studying additional language learning as social in terms of grammar, oral interaction, learning, and sense of self. Specifically, *grammar and language* are theorized as social in systemic functional linguistics for SLA (Fontaine and McCabe, this volume), *oral interaction* is redefined as social practice in various approaches to discourse analysis to additional language learning (Cook, this volume; Tsui, this volume), *learning* itself is understood as social in language socialization (He, this volume), and *sense of self* is reconceptualized as irrevocably social in identity theory (Norton, this *Handbook*, Volume 2).

The recognition that additional language learning is unavoidably social in nature has united many different SLA scholars, and more and more investigations have focused on the interlayered influence of micro and macro dynamics that adolescents and adults experience when they learn a new language (Douglas Fir Group 2016). The lives of adults are always constantly complicated by identity negotiations, uneven distribution of power, implicit and explicit messages about language hierarchies and the human worth of the speakers behind them, and (for many at least) simply pressing life demands on time and resources (De Costa 2019; Flores and Rosa 2019; Kubota 2016; Ortega 2019). All these socially co-constructed conditions of an adult life create tensions that intersect with language learning trajectories and modulate how and how well new languages can be added and how the existing repertoires will be modified and expanded. Thus, the social turn of the late 1990s and 2000s may be now giving rise to a multilingual turn and a social justice turn in the study of additional language learning during adolescence and adulthood. At the same time, adult language learning continues to be studied for the greater part from cognitive-interactionist and formal linguistic perspectives in SLA.

Key questions about additional language learning

Many questions have attracted the attention of SLA researchers, of which I have selected five that I consider to be fundamental areas of disciplinary inquiry.

Age: what are the effects of an early or a late start?

The question of age is perhaps the most investigated, debated, and misunderstood of all research areas in SLA, most likely because of its extraordinary theoretical and educational importance. No researcher denies that starting age greatly affects the eventual success of additional language learning. Success, naturally, is in the eye of the beholder, and we must not forget to ask: *who is to judge success: the researcher, the teacher, one of many stakeholders in the life of the additional language user, or the users themselves?* In SLA, it seems success is defined by researchers using monolingual native-speaker performance as a baseline against which to interpret the main results. When success is strictly understood in these field-specific terms, then it is an empirically established fact that people who begin learning an additional language by naturalistic immersion very early in life tend to attain high levels of linguistic competence, often (but not always) similar to others who begin learning the same language at birth. By comparison, people who begin learning an additional language later in life, and particularly any time after the end of adolescence, exhibit greater variability in their levels of linguistic attainment. In addition, the majority (although not all) of late-starting language users will develop functional abilities in the new language that can be very advanced but are nevertheless different from the functional abilities of others who begin learning the same language at birth. Within this overall agreement that starting age creates visible effects on likelihood of outcomes, a point of debate is whether these effects are discontinuous or gradual. Namely, is there a specific 'critical period' point, before which success is almost guaranteed and after which native-speaker-defined success is practically impossible, as Hartshorne et al. (2018) claimed to find? Theirs was an impressively large sample of two-third million speakers of English, and thus, their claim of a sharp critical age at 17.4 made a big impact on the public imagination and the discipline. But is it instead that case that the age effects are continuous on a gradual cline, such that the younger the start of the new language the more successful the outcomes, and the later the start the less native-like the outcomes are likely to be, as van der Slik et al. (2021) countered in their equally impressive reanalysis of Hartshorne et al.? The jury is still out.

Even much less agreement is found on the most important question, perhaps: what precisely explains the observed age effects? Proponents of the critical period hypothesis believe that the explanation is biological. They posit a maturational, time-locked brain schedule after which it is no longer possible to learn language in exactly the same ways and to exactly the same high degrees of competence as any individual does between birth and years 3 or 4 of life. On the other hand, sceptics of the critical period hypothesis but also some of those who believe in a sudden 'critical' point of onset of drastically poorer outcomes (e.g. Hartshorne et al. 2018) point at alternative, non-biological reasons for the attested age effects, all of which are related to the many differences in experience (linguistic and non-linguistic) between infants and adults. Of particular merit is the argument that a later start may lead to differential results just because one or more other languages have been learned so well already (Flege 1999). The argument is worthy of close attention if one considers that late starters and early starters alike are usually compared to people who grew up by birth with only one language, and thus, they are void of cross-linguistic effects in their monolingual competence. As Birdsong (2018) and Cook and Li Wei (2016) in SLA and Grosjean (1989) in bilingualism have insisted, monolingual competence cannot be expected to be identical to multilingual competence. It may also be that the diverging linguistic competencies we observe at increasingly older starting ages are reflective of the varied social, educational, and emotional complications as well as the varied demands on time and pursuits that come with adult life, compared to the more uniform and restricted lives that infants and toddlers lead before they enter school.

The age debate has been further illuminated in the last 15 years by research conducted in foreign language contexts. This research has demonstrated, repeatedly by now, that beginning a couple of years earlier or later during elementary or middle school makes no sizable overall difference in the levels of L2 attained years later, for example, at the point of high school graduation in Catalonia (Muñoz 2008) or by year 9 at ages 15 or 16 in Germany (Baumert et al. 2020). It seems the main culprit is the scarce experience with the new language that is available in foreign language study, which is two or three hours a week in many school systems. The finding, important as it is, is greeted with dismay and disbelief by many educators and is ignored by education policy-makers, who all across the globe persist on lowering the age at which the compulsory study of English, in particular, begins. For those SLA researchers who favour biological explanations for age effects in late-timed acquisition, the finding does not constitute a challenge to the critical period hypothesis, because it comes from young children, yes, but not from children engaged in naturalistic acquisition.

Cross-linguistic influences stemming from already known languages

A second important question about late-timed language learning is how previously known languages, and particularly the mother tongue, influence the process of learning an additional language. Both strategically and unknowingly, learners rely on their first language(s) and on all other languages they know in order to accomplish something that is as yet unknown to them in the L2. In their by now seminal appraisal of this domain, Jarvis and Pavlenko (2008) identified several noteworthy insights from accumulated research. One is the realization that cross-linguistic phenomena can slow down the pace of learning in cases of language areas where negative transfer occurs, but it also more often accelerates learning and facilitates development in many areas where positive transfer occurs (e.g. for language pairs that are typologically or genetically related and whose lexicons contain many helpful cognates, as in Spanish-English *creatividad = creativity*). Second, similarities in a given language pair can often lead to greater learning difficulties than differences do (e.g. in the case of false friends, as when assuming that the words *actualmente* in Spanish and *actually* in English mean the same thing). A third well attested finding is that cross-linguistic influences are not linearly related to proficiency; instead, different areas of the languages of the individual can result in cross-linguistic effects at some levels of proficiency and not others.

The work of Schepens et al. (2016) offers robust support for the conclusion that cross-linguistic influence is a main contributor in additional language learning: other things being equal, the smaller the distance between two language, the more proficient adults tend to become in the new language. Schepens et al. found this with a sample of over 39,000 participants, all newcomers to the Netherlands from 119 countries. After carefully controlling for factors such as literacy, level of education, and socioeconomic status, a reliable and strong association was shown between directly measured higher proficiency in L3 Dutch and closer proximity to Dutch of the L1 and/or L2 in question. Nevertheless, language distance is not a deterministic barrier to acquiring very high proficiency in a new language, in that these are only (strong) group tendencies, but different individuals can vary widely in how and how well they learn languages, even when they share the same L1 background. But L1–L2/L3 closeness matters, clearly, and the findings reported by Schepens et al. (2016) should not be ignored. For example, public policies intended to support immigrants' learning of the societal language during the initial years of resettling into the new society should extend better and longer support for groups for whom the language learning distance from their L1s to the

majority language is large. However, other factors will also contribute to how well immigrants will learn the majority language, such as literacy in the first language, level of education, and some knowledge of the new language already upon arrival (e.g. Kozar and Yates 2019).

Environment and cognition: what are their contributions to additional language learning?

From the beginnings of the field, much SLA research has focused on human interactions and the discourse strategies in them that bring about potentially useful opportunities for learning. We know a great deal about how linguistically mature interlocutors can facilitate additional language learning by rewording their messages through simplifications and elaborations, by asking for clarifications and expansions, and by using language that is appropriate, interesting, and yet slightly above the level of their interlocutors (Long 1996). From socioculturally oriented studies of the environment for SLA, we also know that many additional language learners are actively involved in their own learning processes, both regulating challenges and maximizing learning opportunities as they seek environmental encounters (Brouwer and Wagner 2004; Kinginger 2004). Finally, we also know that interaction is not a panacea and that learning opportunities may not be actualized at all when interlocutors' attention glosses over the formal details of what is new to them in the L2 because of cognitive overload (Skehan et al. 2012); when access to opportunities to use the new language with others is constrained by power differentials and human-value hierarchies affecting languages and their speakers, possibly at times making interaction and contact antagonistic or, even worse, prejudiced (Diao and Trentman 2021); or when investments in other life quests surpass investments in language learning (Norton Peirce 1995).

Ever since the mid-1990s, much SLA research investigates issues related to memory and attention and how they constrain what can be learned of the additional language, particularly through interaction and formal instruction. While it is clear that the more deliberate attention L2 users pay to new language, the more they learn (Schmidt 1995), it is also clear that much of a new language is learned via implicit attentional processes of extraction of meaning-form correspondences and their associated frequencies and distributions of occurrence (N. Ellis 2019). Contemporary SLA researchers concerned with understanding the cognitive processes of language learning have made a significant investment in building capacity for investigations of the roles of memory and attention, specifically, during learning, by mapping behavioural tasks to fine-grained psycholinguistic evidence from reaction times, eye tracking, and brain imaging (e.g. Grey et al. 2018; Jiang et al. 2020; Kajiura et al. 2021; Son et al. 2022). These methods are complemented by others who use tools from corpus analysis to investigate the speaking and especially the writing of learners (Tracy-Ventura and Paquot 2021). Disciplinary knowledge will no doubt accelerate in coming years under these methodological advances.

Three approaches to explaining variability of L2 learning across individuals

It has always been noted that adolescents and adults who learn an additional language present a daunting landscape of variability in terms of rates, processes, and outcomes by the time they (or the researchers who investigate them) can say they are 'done' with L2 learning. This issue of variability across individuals has been investigated from three perspectives.

The perspective with the longest tradition is known as *individual differences research* and draws on social psychological constructs and methods (Li et al. 2022). This research

is quantitative and correlational, and it assumes multiple causal variables interacting and contributing together to explaining variation systematically. We know from SLA research on individual differences that people differ in how much of a gift they have for learning foreign languages and that this natural ability can be measured with precision via *language aptitude* tests. In general, we can expect aptitude scores and achievements scores for grammar learning (e.g. end-of-course grades, teacher evaluations, and even grammar/proficiency scores) to pattern together by about 25–36% overlap (Li 2015). Motivation is another source of individual differences that has been investigated particularly energetically by SLA researchers over the years, and several theories have shed light on different qualities of motivation that are important in sustaining and nourishing learning efforts, including integrative motivation, self-determined motivation, and motivation guided by the positive concept of an L2-speaking self (Dörnyei 2020).

A second perspective that can help explain individual variability is one that draws from *complexity and dynamic systems theory* (CDST), an approach included in the emergentist family. As Larsen-Freeman (2017) noted, in CDST all research is made to be centrally and primarily about variability. Indeed, variability is thought to be an inherent property of the systems under investigation and increased variability is interpreted as a precursor for some important change in the system as well. This novel perspective calls for the use of new analytical methods that are quantitative, as in the traditional perspective, but also innovatively different because they are individually based rather than based on group means (Lowie and Verspoor 2019), and they are also stochastic and non-causal, that is, based on probabilistic estimations that include the possibility of random variations and fluctuations tracked empirically over time (Verspoor et al. 2011). The new variability-centred framework can be applied to any area of SLA, from interlanguage data (e.g. Verspoor et al. 2008) to the study of motivation (e.g. Papi and Hiver 2020).

A third approach to variability across individuals contrasts sharply with the previous two in taking a *critical* perspective towards the problem at hand. As Norton and Toohey (2001) explain, in this perspective constructs such as motivation, aptitude, and other individual differences are reconceptualized as stemming from the interplay between people's understanding of themselves in the world and the constraints, material and symbolic, that their worlds afford them. There is a constant struggle between societal structure and individual agency, in that the hopes and aspirations of individuals are dialectically shaped by the power structures of the structural systems and societal milieus that they inhabit. In terms of language learning, specifically, structural forces shape the symbolic power of the languages in contact within a given social context, for example, Spanish and English in the United States (Valdés 2005) or Spanish, Catalan, and English in Catalonia (Pujolar 2010). They also shape the degree to which an L2 user may be viewed as a legitimate speaker of the language with the right to be heard by others (Norton Peirce 1995) or whether they are viewed to look and sound like the kind of speaker the White gaze and ear expects and judges as 'appropriate' and 'competent' (Flores and Rosa 2015). Agency, on the other hand, is the relative power that people can garner as they respond to structural forces in their lives and to the positionalities of their contexts (Norton Peirce 1995; Pavlenko and Lantolf 2000). Agency may allow people to negotiate for themselves, through and in their new language, other desired roles and identities and to gain some access to symbolic and material resources that are mediated by their being a user of the additional language. When the structural and agentive sources of variability are investigated in these ways, we gain unique and much improved insights into how and why people learn or do not learn an additional language and how successfully they learn it, critically questioning who defines success in each case.

The role of instruction in SLA

People learning an additional language often seek formal instructional experiences to aid themselves in the process. Answers to what constitutes best language teaching practices have been sought by researchers who specialize in classroom SLA or instructed SLA (R. Ellis 2010; Loewen and Sato 2017). This sector of the SLA community has directed their efforts towards investigating theoretical questions, of which two seem particularly salient: the integration of form and meaning and the gauging of ideal degrees of explicitness in instructional options.

The question of how best to integrate form and meaning in language instruction has received great attention in instructed SLA. When instruction is designed with the exclusive goal of facilitating the learning of new forms out of context, it is clear that the results are unsatisfactory because the grammar that is understood (e.g. in traditional grammar teaching) or the stock of structures that are memorized (e.g. in audiolingual methods) do not suffice to make students into sophisticated and fluent language users. Conversely, when instruction is designed with the sole concern to surround learners with L2 input clothed into meaningful and interesting content in the new language, it has been shown that the results fall short from the ideal as well, because much formal linguistic detail seems to be missed and not learned. Different solutions to the question of form-meaning integration have been investigated, including focus-on-form instruction, task-based language learning, content-based learning or content and language integrated learning, and genre-based language curricula (see chapters in Long and Doughty 2009). The extent to which instructional efforts should be more explicit or more implicit is another central theoretical question in instructed SLA. At a broad level, it appears that instruction that is designed to present language or to directly summon learners to pay attention to language leads to more tangible results, at least in terms of post-test gains (Norris and Ortega 2000). However, we need much more nuanced answers as to what really constitutes degrees of 'explicitness' or 'implicitness' in L2 instruction and under what conditions and in what contexts a continuum of options might be successful.

In the end, beyond these efforts at elucidating the types and qualities of instruction that are most conducive to supporting L2 development, one thing that is clear from the findings accumulated over half a century is that with the aid of formal instruction of some kind, learners' L2 grammar can develop further, and does so faster, than when L2 users are left to their own devices (Ortega 2009).

Looking into the future

Some research trends hold particular promise for the improved understanding of additional language acquisition across the lifespan. First, more SLA researchers are becoming interested in not only the areas of language traditionally investigated the most (grammar, lexis, and phonology and, to a lesser extent, pragmatics) but also in novel areas such as L2 gestures (Stam and Buescher 2018), conceptual structures (Park 2020), emotions (Prior 2019), or literacy and discursive practices and identities (De Costa 2012). Second, we are gradually seeing greater recognition by SLA researchers that cross-linguistic influences cannot be seen as a monocausal, monodirectional affair involving privileged knowledge of the mother tongue (Westergaard 2021). Third, more SLA researchers are willing to acknowledge that additional language learning is fundamentally about learning to become a bilingual or a multilingual and, therefore, about developing multicompetence (Cook and Li Wei 2016), a kind of linguistic competence that is not isomorphic with the competence of a monolingual user. Fourth, the explosion of meta-analyses in the last decade means that increasingly more extant areas of knowledge are

being synthesized and submitted to substantive and methodological scrutiny (e.g. Elabdali 2021; Teimouri et al. 2019; Yanagisawa and Webb 2021), which can only open up new venues of as yet uncharted knowledge. Finally, we are beginning to see an expansion of the learner populations studied by SLA researchers, following suit after researchers who in the past 20 years have initiated research venues for investigating additional language acquisition by adult refugee and forced immigrants (e.g. Minuz et al. 2020), heritage learners (e.g. Montrul 2021), Indigenous communities (O'Grady et al. 2021), and youth and adults with low alphabetic print literacy (e.g. Deygers 2020; Tarone et al. 2009).

Conclusion

The acquisition of an additional language after the first language or languages have been already learned in life is an important piece of the puzzle of human language development. In order to understand the human capacity for language, it is crucial to understand how older children, adolescents, and adults learn new languages routinely and across a wide variety of naturalistic, instructed, and mixed contexts. With a history of well over half a century that has been marked by strong influences from language teaching, psychology, and monolingual first language acquisition, contemporary SLA continues to be a most porous and interdisciplinary field. Today, it harbours a notable diversity of epistemological approaches and an impressive array of methodologies. But the SLA of the 21st century will need to continue searching for novel ways of crafting and recrafting SLA theories that can guide the many interests of the SLA community and also do justice to the variegated and inequitable contexts where additional language learning takes place. By the time (younger and especially older) people begin acquiring an additional language, they already know a lot about language, about the world, and about themselves; knowing so much both confers advantages and complicates things. Furthermore, life is likely to take each adolescent or adult into multifarious and divergent paths, where the makeup of languages they are exposed to, the educational structures within which they might obtain instruction in and about those languages, and the things they want to (or have to) do with them are radically heterogeneous and variable. These variations in surrounding linguistic, educational, social, and agentive affordances are at the heart of describing and explaining additional language learning across the lifespan.

Related topics

multilingualism; language emergence; language socialization; language learning and language education; identity; sociocultural theory; generative grammar; systemic functional linguistics

Further reading

Cook, V. and Li Wei. (2016) *The Cambridge Handbook of Linguistic Multi-competence*, Cambridge: Cambridge University Press. (An original handbook most useful for developing a bilingualism stance on additional language learning)

Gass, S. M. and Mackey, A. (2012) *The Routledge Handbook of Second Language Acquisition*, London: Routledge. (An advanced resource with chapters by experts on most central SLA topics from a canonical perspective)

Li, S., Hiver, P. and Papi, M. (eds.) (2022) *The Routledge Handbook of Second Language Acquisition and Individual Differences*, New York: Routledge. (A comprehensive survey of the newest directions for SLA research into individual differences)

De Houwer, A. and Ortega, L. (eds.) (2019) *The Cambridge Handbook of Bilingualism*, Cambridge: Cambridge University Press. (A research-oriented but accessible treatment of bilingual learning across the lifespan that treats child bilingualism and adult SLA holistically, as cases on a timing continuum)

VanPatten, B., Keating, G. D. and Wulff, S. (eds.) (2020) *Theories in Second Language Acquisition: An Introduction*, 3rd ed., New York: Routledge. (A useful and up-to-date tour of many SLA theories, each chapter by a seminal representative of the theory)

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3

Language teaching and methodology

Scott Thornbury

Introduction

The choice as to the best, the most appropriate, or the most effective way of teaching a language is 'a clear and classic applied linguistic problem' (Cook 2003: 38), with important implications not just for classroom teaching, but for materials and curriculum design, for teacher education, and for educational policy-making in general. The way that teachers address this problem in their classroom teaching constitutes their *methodology*:

> Methodology can be characterized as the activities, tasks, and learning experiences selected by the teacher in order to achieve learning, and how they are used within the teaching/learning process.
>
> *(Richards 1990: 11)*

Methodology, then, is the *how* of teaching. But also implicated are the *what*, the *why*, and the *who*. That is, teachers' choices of activities, tasks, and learning experiences will be influenced by their (implicit or explicit) theories of language and of learning, as well as by their assessment of the needs, learning preferences, and abilities of their learners. These choices in turn may be constrained by the curricular demands of their institution, such as its syllabus and targeted learning outcomes, by the teaching materials and technologies available, by the backwash effect of any tests or examinations that the students may be expected to take, by the local educational culture, and by the teachers' own training and experience, not to mention their personal beliefs and values.

Historical perspectives

Traditionally, these methodological choices may have been partly or wholly pre-specified and enshrined in the form of a *method*. 'A language teaching method is a *single* set of procedures which teachers are to follow in the classroom. Methods are usually based on a set of beliefs about the nature of language and learning' (Nunan 2003: 5, emphasis added). Likewise, Kumaravadivelu (2006) uses *method* 'to refer to established methods conceptualised and constructed

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by experts in the field' and *methodology* 'to refer to what practicing teachers actually do in the classroom in order to achieve their stated or unstated teaching objectives' (2006: 84). Bell (2007) helps elucidate the relationship by distinguishing between methods as 'potential resources' versus methods as 'realized resources', that is, 'an emergent set of regular practices which may be more or less identifiable' (2007: 142) – what we are calling here a *methodology*.

As will be argued, it is the situated, dynamic and emergent nature of methodology that is of greater interest to researchers (and teacher educators) than the somewhat static and prescriptive concept of method. Disillusion with the 'method concept' has a long history: over a century ago Breul (1913) warned teachers. 'Do not be *too* confident with regard to certain new methods, especially do not believe too easily in certain "practical" ones which promise to teach many wonderful things in a very short time' (Breul 1913: 7), while Kelly (1969), in his ground-breaking history of language teaching, was dismissive: 'Methods are of little interest' (1969: 2). But the real break came in the latter part of the 20th century when Stern (1983) declared that 'several developments indicate a shift in language pedagogy away from the single method concept as the main approach to language teaching' (1983: 477). One such development was the failure, on the part of researchers, to find any significant advantage in one method over another. Even distinguishing one method from another might not be as easy as it seems. As Carroll (1953) long ago observed, 'any distinction between recently proposed methods of instruction and the more traditional methods can be made to seem great on paper but the distinction is not necessarily present to any significant degree in actual practice' (1953: 169). And the way that methods are actually implemented in classroom settings suggests that there is as much diversity within a given method's application as there is across methods. In short, methods might be, in Johnson's (2013: 211) characterization, simply 'plausible fictions' and, as such, elude analysis and comparison.

This blurring of methodological distinctions is a challenge to the 'modernist narrative', whereby the history of methods is represented (on many teacher education courses) as one of incremental progress from darkness into light. For a start, changes in methodology have not happened uniformly nor in unison. For long periods of time different methods functioned in parallel, and still do. By the same token, features of different methods have often been combined to create methodological blends and fusions, an eclectic strategy that is probably more widespread than is acknowledged and, as such, serves to blur the distinctions between one method and another. As Corder observed, some time back, 'The development of language-teaching methods . . . has in fact been empirical rather than theory-directed. . . . The fact seems to be that teachers have "followed their noses" and adopted a generally eclectic approach to teaching methods' (1973: 135–136).

Moreover, recognition of the huge range of contextual variables that impact on second language learning has challenged the notion of a single monolithic method, particularly one that is generated apart from the context in which it is implemented. This view has given rise to the notion of *appropriate methodology* (Holliday 1994), particularly in relation to the design of large-scale curriculum projects for non-BANA (British, Australian, and North American) contexts. Holliday warned that

> there is a grave danger of teachers and curriculum developers . . . naively accepting BANA practice as superior, and boldly carrying what are in fact the ethnocentric norms of particular professional-academic cultures in English language education from one context to another, without proper research into the effect of their actions.
>
> *(1994: 102)*

Methods, as Pennycook (1989) argues, are never disinterested, but serve the dominant power structures in society, leading to 'a de-skilling of the role of teachers, and greater institutional control over classroom practice' (Pennycook 1989: 610). Such a view represents what might be called a 'critical turn' in methodology, whose proponents seek to redress social, cultural and/or linguistic inequalities and to (re)instate the learner's agency and autonomy while, at the same time, wresting power, control, and authority away from the traditional stakeholders, such as examining bodies, publishers, education ministries and universities.

This combination of factors prompted a number of scholars to announce the 'death of method' (Allwright 1991) and to herald what is known as the *post-method condition* (Kumaravadivelu 1994). Kumaravadivelu argues that, rather than subscribe to a single set of procedures, post-method teachers should adapt their approach in accordance with local, contextual factors while at the same time being guided by a number of *macrostrategies* that are 'derived from the current theoretical, practical, and experiential knowledge base' (Kumaravadivelu 2006: 69). Two such macrostrategies, for example, are 'Maximise learning opportunities' and 'Promote learner autonomy'. Long (2011) makes a similar claim, extrapolating ten methodological 'principles' (MPs), or 'universally desirable instructional design features' (2011: 376), from research findings. One such MP is 'Provide rich (not impoverished) input'; another is 'Promote cooperative/collaborative learning' (p. 387).

Other scholars have argued that a concern for methods overlooks the fact that effective pedagogy is realized less at the macro than at the micro level – that is, not in terms of how a method is broadly applied but in terms of the moment-to-moment interactions between the teacher and the learners:

> Studies of classroom events . . . have demonstrated that teaching is not static or fixed in time but is a dynamic, interactional process in which the teacher's 'method' results from the processes of interaction between the teacher, the learners, and the instructional tasks and activities over time.
>
> *(Richards 1990: 37)*

Van Lier (1996: 158) takes a similar view, arguing that 'curriculum innovation . . . can only come about through a fundamental change in the way educators and students interact with one another. . . . Reform thus occurs from the bottom up, one pedagogical action at a time'. As we shall see, the focus of classroom research has likewise been redirected away from a concern for the top-down application and comparison of methods to a focus on 'one pedagogical action at a time'. In similar vein, Atkinson and Shvidko (2019) foreground the role of interaction, but go further, putting the case for a 'natural pedagogy' that not only pre-dates 'method' but is a deeply evolved and largely instinctive human behaviour: 'The continuing emphasis in TESOL on artificial methods and approaches may suggest a lack of *pedagogical imagination* about teaching outside the usual lines and borders' (2019: 1106, emphasis in original).

Nevertheless, and despite the criticisms levelled at it, the 'method construct' has proved remarkably resilient, evidenced, for example, by the frequent occurrence of the word *method* in the online marketing of language courses, typically collocating with adjectives such as *unique*, *effective*, *new*, and *modern*. This no doubt reflects the popular belief that there is a 'scientific' solution to the intractable problem of second language learning. As Nunan (1998: 228) reminds us, 'for much of its history, language teaching has been obsessed with the search for the "right" method'.

Furthermore, a great deal of teacher training, particularly at the pre-service level, is predicated on the belief that the acquisition of a set of techniques, typically associated with an

established method, is a prerequisite for effective teaching. As Richards and Rodgers (2014: 349) argue, methods 'solve many of the problems beginning teachers have to struggle with because many of the basic decisions about what to teach and how to teach it have already been made for them'. Hence, 'methods are probably necessary' (ibid.) even if they are subsequently adapted or even abandoned.

Equally importantly, methods tend to be instantiated in the materials teachers use, especially their coursebooks. Whether overtly or covertly, coursebooks subscribe to a configuration of pedagogical options derived from a particular methodological orientation, such as the exclusive use of the target language or a deductive approach to grammar teaching. For example, Nitta and Gardner (2005), in an analysis of nine current coursebooks, found that 'each one is based on a Presentation-Practice approach to grammar teaching' (2005: 3). On the other hand, Anderson (2020), argues that current coursebook design favours a text-analysis-task-exploration (TATE) sequence, whereby the linguistic syllabus is typically mediated through whole texts rather than isolated sentences. The extent to which teachers align their classroom practice with such models – and with the principles that underpin them – is of course an empirical question. Nevertheless, in many EFL contexts, as Akbari (2008: 647) argues, the textbook *is* the method: 'What the majority of teachers teach and how they teach . . . are now determined by textbooks.' This is perhaps unsurprising, given the global marketing of textbooks. As Kumaravadivelu (2003: 255) reminds us, 'because of the global spread of English, ELT has become a global industry with high economic stakes, and textbook production has become one of the engines that drives the industry'. And, arguably, one that drives and reproduces the method that the textbook embodies.

In short, any discussion of methodology must take into account the notion of method and the way that this notion is perpetuated in teacher education and in published materials. There is not space here, however, to review the history of methods (but for comprehensive accounts, see Howatt and Widdowson 2004 and Richards and Rodgers 2014). Suffice it to say that – whether a method or a methodology – communicative language teaching (CLT) is generally considered the current 'orthodoxy' and the 'method' to which most practicing teachers currently subscribe.

Credited with 'replacing' audiolingualism, itself a legacy of the direct method,

> the proponents of CLT sought to move classroom teaching away from a largely structural orientation that relied on a reified rendering of pattern practices and toward a largely communicative orientation that relied on a partial simulation of meaningful exchanges that take place outside the classroom.
>
> *(Kumaravadivelu 2006: 61)*

However, CLT may have been less revolutionary than initially conceived, and many of its foundational attributes, such as a semantic syllabus or a task-based lesson design, were subsequently weakened or even abandoned (see Thornbury 2016), such that Howatt (1987) was to argue,

> Most of the essential features of direct method and structural language teaching have remained in place in CLT, largely unexamined and undisturbed, just as they have been for a century or more. CLT has adopted all the major principles of 19th century reform: the primacy of the spoken language, for instance, the inductive teaching of grammar, the belief in connected texts, and, most significant of all, the monolingual (direct method) principle that languages should be taught in the target language, not in the pupils' mother tongue.
>
> *(1987: 25)*

Nevertheless, 'the general principles of CLT are still widely accepted in language teaching today' (Richards and Rodgers 2014: 81). Within Europe at least, there has been a notable degree of harmonization in terms of how CLT has been integrated into mainstream language education due largely to the Council of Europe, who have been instrumental in promoting both a communicative methodology and a common, non-language-specific 'framework' for description and assessment (see Council of Europe 2011). Arguably, however, CLT has made less of an impact, or even zero impact, in educational cultures that value accuracy over fluency, literary texts over authentic texts, and teacher-fronted pedagogies over more learner-centred ones (Yu 2001; Bax 2003).

Critical issues and topics

'If an approach such as this [i.e. CLT] is used effectively . . . it may be the core of a true communicative revolution in teaching method,' wrote Brumfit (1978: 44), one of CLT's first advocates, at the time. But for all its superficial novelty, CLT may not have been as revolutionary as claimed: as McLelland (2017) observes,

> The turn to communicative language teaching of the last half-century or so is not, as it is sometimes portrayed, the first moment of enlightenment, emerging from the darkness of grammar and translation. Rather, it is in some ways merely a return to how things were before.
> *(2017: 123–124)*

This perspective reminds us that the history of methodology is less a history of individual methods than the recycling of a relatively small set of 'big ideas': 'Old approaches return, but as their social and intellectual context are changed, they seem entirely new' (Kelly 1969: 396). In similar spirit, Pennycook (1989) writes,

> While it is clear that language teaching has undergone many transformations over the centuries, a thorough examination of the past suggests that these changes have represented different configurations of the same basic options rather than some linear, additive progress towards the present day, and that these changes are due principally to shifts in the social, cultural, political, and philosophical climate.
> *(1989: 608)*

What, then, are these 'basic options', and in what ways might they be differently configured?

According to Richards and Schmidt (2002), methods can be characterized in terms of how they are positioned with regard to the following key issues:

> a the nature of language
> b the nature of second language learning
> c goals and objectives in teaching
> d the type of syllabus to use
> e the role of teachers, learners, instructional materials
> f the activities, techniques and procedures to use
>
> *(2002: 330)*

These choices are configured differently for different methods (in the prescribed sense), according to where each method positions itself in relation to a number of key parameters, or

dimensions. The notion of dimensions draws on the work of Stern (1983, 1992), who in turn built on earlier work in the area of 'method analysis' (Mackey 1965). In proposing a more flexible alternative to the 'methods construct', Stern identified three 'central issues of language learning' (1983: 400), from each of which he derived a continuum of strategic and procedural choices. These he labelled the *intralingual-crosslingual dimension*, the *analytic-experiential dimension*, and the *explicit-implicit dimension*. Expanding on these options so as to be able to map them on to the six domains identified by Richards and Schmidt (2002), and updating them in the light of recent educational, theoretical, and even ideological developments, we find at least ten dimensions to the concept of method (as traditionally conceived), which can be co-opted as a purely descriptive rubric for characterizing an individual teacher's or an institution's methodology:

The nature of language

- The formal-versus-functional dimension: 'the methodology construes language as a structural system, internalised as formal operations or rules' versus 'the methodology construes language as 'meaning potential', internalised as a system of semantic choices'

The nature of second language learning

- The analytic-versus-experiential dimension: 'the methodology prioritises formal instruction and intentional learning' versus 'the methodology seeks to replicate naturalistic, informal, experiential, or incidental learning processes'

Goals and objectives in teaching

- The product-versus-process dimension: 'the methodology focuses on the teaching and assessing of pre-specified linguistic goals' versus 'the methodology aims at developing and assessing the learner's capability for language learning and use'
- The accuracy-versus-fluency dimension: 'the methodology aims at achieving formal accuracy, particularly of grammar' versus 'the methodology aims at achieving communicative fluency, particularly at the level of discourse'

The type of syllabus to use

- The systems-versus-skills dimension: 'the syllabus is organized according to linguistic criteria (e.g. grammar, phonology)' versus 'the syllabus foregrounds language skills or competences'
- The segregated-versus-integrated dimension: 'the target language is taught apart from other subjects in the curriculum' versus 'the target language is integrated into other curricular content'

The role of teachers, learners, and instructional materials

- The cognitive-versus-affective dimension: 'the methodology prioritizes mental effort and cognitive processing' versus 'the methodology prioritizes affective and holistic engagement'
- The transmissive-versus-dialogic dimension: 'teaching is viewed as the transmission of discrete units of knowledge' versus 'teaching is viewed as an interactive process in which knowledge is collaboratively constructed'

The activities, techniques, and procedures to use

- The deductive-versus-inductive dimension: 'the methodology favours the explicit presentation of rules (e.g. of grammar)' versus 'the methodology expects or invites learners to discover the rules for themselves'
- The crosslingual-versus-intralingual dimension: 'the methodology acknowledges and exploits the learner's L1' versus 'the methodology rejects or discourages a role for the L1'

The first thing to note is that there is considerable correlation across these dimensions. For example, a methodology – such as CLT – that adopts a functional view of language is likely to articulate its goals in terms of communicative fluency. Likewise, an analytic approach to language learning – such as grammar-translation – is likely to be realized in a transmissive teaching style and the use of a crosslingual activities (i.e. translation). But as has been noted, individual teachers will probably make their own choices as to where they position themselves on each dimension, consistent with their teaching context (Bax 2003) and their own values and beliefs and, crucially, their 'sense of plausibility' (Prabhu 1990).

Current contributions and research

At least three significant developments in methodology mark the period since this *Handbook*'s first edition, and each continues to stimulate new directions in research. The first of these is what has been called 'the multilingual turn' (May 2014) and relates directly to the crosslingual-versus-intralingual dimension mentioned in the previous section. Stern (1992) himself noted,

> This strategy pair has resulted from one of the most long-standing controversies in the history of language pedagogy: the role of L1 in L2 teaching. . . . For many teachers, the crosslingual strategy is no longer considered a point for discussion; in theory language teaching today is entirely intralingual.
>
> *(1992: 279)*

Stern went on to suggest that it may be time to reconsider this option. Writing over 20 years later, May (2014) complains that not a lot has changed and that instructed second language acquisition is still treated 'as an ideally hermetic process uncontaminated by knowledge and use of one's other languages' (May 2014: 2). This is reflected in methodology guides which pay scant attention to crosslingual activities in the classroom. However, the tide may be turning. A search of the archives of *ELT Journal* from 2014 to 2021 shows 35 articles mentioning the term *translanguaging* ('the act performed by bilinguals of accessing different linguistic features or various modes of what are described as autonomous languages, in order to maximise communicative potential' [García 2009: 140]). This compares to only two mentions in the seven years prior to 2014.

The second significant development has been in technology-assisted learning. Even before the COVID-19 pandemic in 2020 precipitated the entire world into 'emergency remote teaching' (Hodges et al. 2020), language instruction in many contexts had already moved partly or wholly online, in the form of 'blended', 'hybrid, or 'flipped' models of curriculum design (McCarthy 2016; see also Kern, this volume). An immediate research concern is the extent to which classroom methodologies – such as task-based language teaching – can be adapted to an online environment (see, for example, Chong and Reinders 2020), as well as how such

definitive communicative practices as fluency-focused pair and group work can be supported using conferencing platforms like Zoom (see British Council 2021). In a timely study of online teachers' professional 'vision', Meskill et al. (2020: 121) found 'a vibrant picture of professionalism', suggesting that online teaching need not be 'second best': respondents reported 'valuing authentic and multimodal affordances, opportunities for tailored instruction/feedback, and highly productive interactions with students, interactions otherwise not feasible in live classrooms' (ibid.). Nevertheless, some sceptics have argued that the communicative approach – already 'weakened' by a reversion to synthetic syllabuses and granular learning outcomes – is further undermined when the contexts of language learning are disembodied and deracinated.

It is recognition of this embodied and situated nature of language use – and, by extension, language learning – that motivates a third significant development in both methodology and research – what might be called the ecological turn. This has roots in the concept of 'situated learning' (Lave and Wenger 1991): 'In contrast with learning as internalisation, learning as increasing participation in communities of practice concerns the whole person acting in the world' (1991: 49). From this perspective, classrooms are nested within institutions, and these within communities and cultures: teaching is only fully effective and only fully understood when these contextual factors are taken into account. As Larsen-Freeman and Cameron (2008) insist, 'we thus cannot separate the learner or the learning from context in order to measure or explain it. Rather we must collect data about and describe all the continually changing system(s) involved' (2008: 238).

Consistent with this ecological turn, proponents of usage-based instruction advocate a model of instruction that incorporates 'learning in the wild' experiences, in which classroom learners prepare for real-life encounters and then participate in, record, and document these encounters for subsequent debriefing back in the classroom (Wagner 2015; Lilja and Piirainen-Marsh 2019). 'The goal is to view classroom and non-classroom not as compartmentalized contexts but as contiguous, porous spaces for L2 learning' (Tyler and Ortega 2018: 13). This in turn has impacted on the way research studies are conducted: Baynham and Simpson (2010), for example, make the point that

> classroom-based research . . . has tended to insulate the classroom itself from its surrounding context, defining its object by looking inwards at the routines, activities, and interactions which constitute the classroom. Here we propose the need to situate the classroom itself in social and in multilingual sociolinguistic space.
>
> *(2010: 425)*

Main research methods

Attempts to compare and contrast methods (when the 'method concept' was still popular in the latter part of the last century) triggered a number of research studies, the predominant focus being on comparing communicatively oriented approaches with more 'traditional', primarily audiolingual, ones. On the whole, most of these studies have been inconclusive, and 'there is no clear evidence, for example, that CLT is more effective than more traditional methods that emphasize formal accuracy' (Ellis and Shintani 2014: 49).

Comparative methods research lost traction in the latter decades of the 20th century, partly because of disaffection with the method concept itself, but also because of the impossibility of controlling all the variables at play in any one teaching situation.

Moreover, as Waters (2012) notes,

> because the world of classroom teaching is largely invisible, detecting patterns at this level is difficult. Even when classroom observation is possible, it is likely that what is seen will differ from what normally happens, due to the 'observer effect'. Furthermore, there is the issue of variability across the myriad situations in which EFL is taught around the globe.
> *(2012: 440)*

In the same spirit, Ur (2013) highlights 'the sense of dissonance between the method-based approach that appears to predominate in the ELT theoretical literature on the one hand, and the situated methodologies that are implemented in many (probably most) places in practice' (2013: 473).

Nevertheless, there are some scholars who would argue that comparative method analysis is still of potential value, especially given the claims (based largely on theoretical grounds) being made for task-based language teaching, in particular. As Ellis and Shintani (2014) argue,

> as long as the method construct is alive – and there is no real sign of its demise – there is a need to evaluate the claims made by different methods. What is needed is not the abandonment of method studies but better designed studies.
> *(2014: 49)*

Such studies would need to control for extraneous variables, avoid testing procedures that might be biased towards a particular method, and, through classroom observation, ensure that the methods under analysis are being consistently applied.

In place of method comparison research, there has been a revival of interest in the history – or the *historiography* (Smith 2016) – of language teaching methods and their associated texts, with the aim of using primary sources to problematize the 'potted' accounts of language teaching methods, perpetuated on teacher training courses, and by 'situating shifts in language teaching theory and practice . . . within broader social, political, economic and cultural transformations' (Howatt and Smith 2014: 93).

The shift away from a preoccupation with (top-down) methods in favour of a concern for (bottom-up) methodology has moved the focus of classroom research on to the moment-by-moment interactions between teachers, learners, and materials, opening up new directions in classroom research. Interaction analysis, discourse analysis, and conversation analysis are three related methodologies that, in conjunction with classroom observation, have been used as a means of obtaining objective and quantitative data as to what really goes on in classrooms. In interaction analysis, researchers typically employ a checklist of categories in order to capture and code observable classroom behaviours, especially the interactions between teachers and learners and between the learners themselves (see, for example, van Lier 1988). Discourse analysts and conversation analysts share an interest in fine-grained analyses of classroom talk, the former ascribing specific functions to different utterances (such as *initiation*, *response*, and *follow-up*), and mapping these on to a hierarchically structured system of 'ranks'. In an extended study of classroom talk, Johnson (1995) uses an eclectic methodology to demonstrate how 'the patterns of classroom communication depend largely on how teachers use language to control the structure and content of classroom events' (1995: 145). Likewise, Walsh (2006), using a 'variable approach to investigating L2 classroom interaction' (2006: 55), including discourse analysis, identifies four 'modes' of classroom interaction, each with its distinctive discourse features, which provides a framework for self-evaluation and teacher development.

More recently, classroom research – situated primarily within a conversation analysis (CA) framework – has amplified the scope of classroom interaction to include not just verbal data but gesture, gaze, and proxemics (Hall and Looney 2019); multimodality (Jacknick 2021); movement (Jakonen 2020); and the affordances offered by the material 'things' in the teaching-learning ecology (see, for example, Guerrettaz et al. 2021).

Working within either a cognitivist or a sociocultural paradigm, researchers have looked at the way learners co-construct learning during the performance of tasks and at how teachers structure and 'scaffold' teacher-learner talk in order to maximise learning opportunities (see Tsui, this volume). Research into task-based language teaching has produced a number of experimental studies aimed at identifying the effect of task design and implementation on such learning outcomes as accuracy, fluency, and complexity: see Bryfonski and McKay (2018) for a review.

An ethnographic approach to classroom research 'attempts to interpret behaviours from the perspective of the participants' different understandings rather than from the observer's or analyst's supposedly 'objective' analysis' (Chaudron 1988: 14–15). Rather than apply predetermined categories to the observation data, the researcher (who may also be a participant) simply describes and draws connections between, classroom processes, 'not as these processes are depicted in methodology texts and position papers, but as they are experienced and understood by language learners and teachers' (Bailey and Nunan 1996: xi). One approach to ethnographic classroom research that has gained momentum in the last decade is narrative inquiry (Barkhuizen et al. 2013), whereby teachers' stories provide rich data about the complexity of classroom life. Two developments, both consistent with an ethnographic approach, are the use of research models derived from an ecological perspective (van Lier 2004) and from complexity theory (Larsen-Freeman and Cameron 2008), both of which 'regard the educational context as a complex, messy system' (2004: 204). Furthermore, in the belief that language learning is fundamentally usage-driven (Tyler and Ortega 2018), usage-based approaches to classroom research have adopted a variety of quantitative and qualitative approaches (such as case studies, corpus linguistics, conversation analysis, and ethnomethodology) designed to capture developmental processes and correlate these with previous or concurrent opportunities for exposure and socially contingent interaction.

Ecological, dynamic systems theory and usage-based approaches situate language classrooms in their local contexts; critical approaches to classroom research (Pennycook 1994) do the same, but foreground the view that 'all knowledge production is also situated in a particular social, cultural, and political context' (1994: 693). As Auerbach (1995) observes, 'once we begin looking at classrooms through an ideological lens, dynamics of power and inequality show up in every aspect of classroom life' (1995: 12). Liddicoat (2009), for example, describes how, when some learners challenge the heteronormative construction of their identities, they are assumed to be linguistically at fault or are simply ignored. Chun (2019) uses an ethnographic case study of an EAP classroom to track the way the teacher co-constructs alternative representations of Islam. And in a review article on race and language teaching, von Esch et al. (2020) report research showing how language teaching practices and materials privilege Whiteness and 'Anglonormativity' at the expense of racially and ethnically minoritized learners.

Recommendations for practice

For many scholars, language teaching methodology will never merit serious attention until it aligns more closely with the results of research, and specifically research into second language acquisition (SLA). Until such time as language teaching is 'evidence-based', it is argued, it will constantly be at the mercy of folk theories and faddishness. As Long (2015) argues, 'since SLA

is the process LT [language teaching] is designed to facilitate, the relationship between the two, and understanding the effects and effectiveness of instruction, and constraints on instruction, is of considerable interest' (Long 2015: 29). But he adds that 'the problem is, the relationship between SLA and LT has not always been a positive one, such that SLA-based proposals will not necessarily be welcomed with open arms' (ibid.).

Why might this be the case? One reason is that, even when teachers are aware of the research findings (which is not necessarily the case: see Borg 2009), they are not always convinced of their relevance or generalizability. As Han (2007: 392) puts it, 'researchers need to be ever mindful that as much as their studies are generalisable, pedagogy is largely local'.

Nor does the lack of consensus among the researchers themselves inspire confidence: 'We are now in a situation where there is a plethora of SLA theories, all of which have some merit, but which also in some respects offer fundamentally different accounts of L2 acquisition' (Ellis and Shintani 2014: 323). Even with regard to such basic considerations, such as whether or not to adopt a crosslingual strategy or whether or not to teach grammar deductively, the jury is still effectively out. Teachers' guides, while providing teachers with accessible interpretations of research findings, are necessarily selective and – like the training courses for which they are often the core text – may well be skewed in the direction of a specific method (see Thornbury 2019).

In the end, the individual teacher's 'sense of plausibility' (Prabhu 1990), and hence, their classroom practices may be grounded as much in their experience and the resultant intuitions as in what they might infer from research. As Johnson argues (1996), 'what teachers know about teaching is not simply an extended body of facts and theories but is instead largely experiential and socially constructed out of the experiences and classrooms from which teachers have come' (1996: 166–167).

Rather than dismissing such a view and further exacerbating the 'dysfunctional discourse' between researchers and practitioners (Clarke 1994), those whose job it is to train, advise, or assess classroom teachers might wish to pay more attention to what teachers themselves have to say about their teaching, in all its myriad complexity.

Future directions

This brief survey of research into language teaching methodology demonstrates how much more complex the situation is than a traditional 'methods' view of teaching might suggest. Classrooms are indeed 'complex, messy systems' that resist neat classifications. Factoring in the huge range of context variables – centre versus periphery, EFL versus ESL, child versus adult, native-speaker teacher versus non-native-speaker teacher, public versus private sector education, online versus face-to-face, integrated versus segregated curriculum, and so on – produces a situation that would seem to defy any attempts to define a set of core principles for language teaching. At the same time, walking into a language classroom in any part of the world, the visitor will be struck by just how much is shared across all these different contexts. Testimony to this fact is that, more than ever, teachers from different contexts regularly exchange experiences and beliefs about their teaching in online discussion groups or, directly, at conferences. They are trained in the same or similar methods, use the same or similar textbooks, read the same or similar teachers' guides, and use the same downloadable resources from the Internet. They also encounter the same or similar constraints in their local teaching contexts and work at overcoming them using similar strategies. Language teaching methodology seeks to identify and describe these global commonalities while at the same explaining and vindicating diversity at the local level.

Related topics

language teacher education; technology and language learning; language learning and language education; classroom discourse

Further reading

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Richards, J. and Rodgers, T. (2014) *Approaches and Methods in Language Teaching*, 3rd ed., Cambridge: Cambridge University Press. (This is an updated version of a core text, describing methods in terms of their underlying principles and their surface practices.)

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4

Technology and language learning

Richard Kern

Introduction

The recent pandemic, requiring that instruction be offered remotely in the vast majority of educational institutions around the world, has raised awareness of the central importance of technology in language learning and teaching. But the relationship between technology and language learning actually began over 5,000 years ago with the development of writing. Using clay tablets and reed styluses, Mesopotamian scribes used writing chiefly for accounting purposes, but pedagogy had its place too. Archaeological findings include lexical lists – thematically organized groupings of Sumerian words for professions, places, trees, wooden objects, leather objects, stones, fish, and so on – which scribes used to teach the conventions of the cuneiform writing system to their apprentices.

Racing through millennia, through the technologies of wax tablets and papyrus rolls in ancient Greece and parchment manuscripts in medieval times, we come to the form of technology that has without question had the greatest impact on language learning in history: the printed book. Books allowed readers to explore text in nonlinear fashion and were therefore well suited for reference use and autonomous study. Once they become affordable through mass production, they altered the relationship between learner and teacher. With knowledge and standards transmitted by print, teachers were no longer necessarily the ultimate source of all knowledge and came increasingly to be viewed as interpreters of books (Kelly 1976).

The phonograph, tape recorders, radio, film, and television made audio and visual resources available to language learners. Computer technology, because it incorporates and remediates all of the foregoing media and because it has become so integrated into people's daily lives in industrialized societies, will be the focus of this chapter. But it should be borne in mind that the questions and issues raised are usually not just pertinent to computers but relate to technological supports in general. Similarly, debates about the primacy of teachers versus technologies in teaching are not new. Despite the cries of doomsayers who believe that computers will replace teachers, teachers in the digital age are as essential as ever in helping students to make and interpret meaning in a new language and culture.

A unique and defining feature of digital technologies is that they combine media that were traditionally displayed in their own medium and format (e.g. paper, vinyl, magnetic tape,

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cellulose) and represent text, image, sound, and video with a common underlying data structure encoded in zeros and ones, allowing unprecedented integration and manipulability of media. These changes in the material infrastructure of media, by allowing rapid electronic transfer, have been accompanied by social changes as well. Information and communication technologies have made it possible for us to make contact with people, images, ideas, and information from around the world faster and more cheaply than ever before. The rapid spread of participatory tools and sites facilitating social networking, interactive game playing, collaborative writing and editing, and multimodal production provide opportunities for new kinds of social encounters, new kinds of communities, and new kinds of learning environments.

We will begin our exploration of the topic by outlining some common metaphors of technology and language learning.

Metaphors of technology and language learning

Digital technology has been used for a wide range of purposes related to language teaching and learning. We can roughly categorize these uses in terms of three metaphors: the digital device as tutor, tool, or medium.

The 'tutor' metaphor implies that the digital device is simulating a teacher in some way, such as when computers are used to present material (e.g. grammar, vocabulary, or cultural information), to provide language practice (such as exercises in pronunciation, writing, listening or reading), to analyse learners' language performance and provide feedback, or to test learners' knowledge of language and culture. Language learning apps such as Duolingo, Babbel, and Rosetta Stone would be examples of digital devices used as tutors.

The 'tool' metaphor puts the focus on individual learner agency, goals, and needs in accessing a wide variety of resource materials relevant to the language and culture being studied. Such materials include news media, films and videos (some with closed captions or subtitles), radio and television broadcasts, special interest websites, blogs, advertisements, songs, performances, speeches, and so on. The Internet also provides reference and research tools such as search engines, online dictionaries, grammar and style checkers, and audio waveform analysis. Corpus analysis and concordance (see Lin and Adolphs, this volume), providing insight into the real-world contexts in which words and collocations occur across various genres, registers, and language varieties (including learner language), has been an increasingly researched area (see, for example, Belz and Vyatkina 2008; Ho Lee et al. 2015). Finally, automated speech recognition (Godwin-Jones 2009), automated writing assessment tools (Matthews and Wijeyewardene 2018; Warschauer and Grimes 2008; Shermin and Burstein 2013), machine translation tools (Lee 2020; Ducar and Schocket 2018), and the use of mobile devices for language learning purposes (Pegrum 2014; Stockwell 2010; Smith and Wang 2013) are recent tool-oriented developments to watch in the coming years.

The 'medium' metaphor emphasizes the communicative agency of language learners, who express themselves and interact with other people 'through' a computer or other digital device. Language learners engage in a wide variety of technology-mediated communicative practices – sometimes in instructional contexts, but often not. The medium metaphor is by far the broadest in scope and includes work in computer-mediated communication (Danet and Herring 2007; Herring 1996), social networking (Alemán and Wartman 2009), and network-based language teaching (Warschauer and Kern 2000). Specific applications of the computer as medium metaphor will be described in the following section.

The tutor, tool, and medium metaphors relate more to functional uses of technology than to specific applications since applications may appeal to more than one metaphor. For example,

some of the classic technology-based language learning projects, such as *À la rencontre de Philippe*, *Dans un quartier de Paris,* and *Cultura* (Furstenberg and Levet 1999; Furstenberg et al. 1993; Furstenberg and Levet 2014), integrate elements relating to each of the three metaphors.

The tutor, tool, and medium metaphors of technology interact with three metaphors of language learning. The first, associated with psycholinguistic, information processing approaches to language acquisition (see Field, this volume), metaphorically frames the learner as a computer that receives and processes language input in order to generate rules and verbal output. The second, associated with discourse analytic and anthropological approaches to language socialization (Ochs and Schieffelin 2008), frames the learner as an apprentice who uses language and behaviour to enter and participate in a community of practice and who further learns language and behaviour by virtue of that participation (see He, this volume). A third metaphor of language ecology attempts to encompass the full complexity of the relationships and processes involved in learning to live in one or more languages and cultures (Levine 2020; van Lier 2004; Kramsch, this volume).

At first glance, the learner as computer metaphor would seem to map neatly onto the tutor and tool metaphors of technology, with the learner as apprentice metaphor corresponding to the medium metaphor of technology. However, in practice, one finds that such mappings are not so tidy since all three technology metaphors can be applied in various permutations to both language acquisition and socialization metaphors (e.g. studying input/uptake in online exchanges or learner socialization in computer-assisted tutorials). The ecology metaphor – because it focuses specifically on relationships between learners and their environments (including non-human artefacts such as computers) – has become particularly appealing for those who work in the area of technology and language learning (e.g. Thoms and Poole 2017; Lam and Kramsch 2003).

Features of electronically mediated communication

To elaborate on the medium metaphor outlined earlier, electronically mediated communication (EMC) is often categorized as synchronous or asynchronous. Synchronous modes include text chat, instant messaging, Voice over Internet Protocol (e.g. Skype), videoconferencing, online games, and virtual worlds (e.g. Second Life). Asynchronous modes include email, forums, wikis, blogs, social media (e.g. Facebook, Instagram, Twitter). The synchronous/asynchronous distinction is not always clear-cut, however, and often is determined more by the user than by the interface. For example, email or a Facebook page can be used 'synchronously' like instant messaging if the communicating parties are online at the same time. Conversely, instant messaging can be used 'asynchronously' like email if the user allows messages to collect and does not respond. In any event, none of the written modes is truly synchronous since messages are sent after being composed, rather than keystroke by keystroke (as was the case for the earliest texting systems). An important question is whether the 'medium' or interface in these environments is really as neutral as is often thought and to what extent it becomes a social actor interacting with human actors (Latour 2005).

Although EMC has become increasingly speech- and video-mediated, much of EMC is still written via keyboard. Written EMC ranges along a continuum from product-oriented forms resembling paper-based writing (e.g. websites, most email) to more process-oriented interactive discourse (e.g. chat, Slack) that shares many features of speech (Baron 2008). Collaborative Google Docs and wikis would be variably placed along the continuum, depending on the nature of the writing. On the product-oriented end of the continuum, messages are composed as

wholes before being 'released' to their reader(s). On the process-oriented end, utterances may be more fragmentary, and multiple participants can communicate spontaneously and simultaneously (even contributing comments at the same moment). In the face of quick flurries of messages, some users will break up a single message into segments sent over several turns in order to maintain a quick interactive rhythm and to keep their place and visibility in the exchange. Communicative motivation or purpose tends to vary along the continuum as well: the 'product' end is biased toward presentation of information, whereas the 'process' end is biased toward social contact or spontaneous reaction.

The interactive and fragmentary nature of chat and instant messaging make them seem somewhat speech-like. However, unlike spoken communication, the binary on/off nature of the medium does not allow backchanneling ('uh-huh', 'right', shaking of the head, etc.) from a partner while one is communicating. This is symptomatic of the reality that EMC is a 'leaner' overall medium than face-to-face communication in the sense that information is communicated principally in textual form, whereas in face-to-face communication, auditory, tactile, olfactory, and visual channels operate in parallel – allowing eye contact, context perception, and gestural and prosodic information – all of which enrich communication (Herring 1996). The relative leanness of EMC creates a different dynamic from that of spoken communication, and this difference may well be significant for language learning contexts that are exclusively EMC-based (e.g. tandems or 'key-pal' projects). Another significant difference between EMC and spoken communication is that most (but not all) forms of written EMC leave an enduring trace, allowing them to be searched, sorted, reviewed, forwarded, and recontextualized. This has potential benefits for language learning in that exchanges can be mined for vocabulary, structures, discourse markers, and so on, but it also raises issues of privacy (see Reinders and Lan 2021).

Genre and register in EMC

Genres have to do with purposes of language use. They establish norms of interaction by codifying the respective roles of readers/listeners and writers/speakers and the relationships between them and by setting corresponding parameters of appropriateness for language use. Narrative, lecture, conversation, discussion, report, interview, explanation, and poetry are all examples of genres. Because genres are fundamentally social phenomena, they most often vary across cultures.

As should be clear from the previous section, EMC is not a genre. Rather, its various modes (email, blogs, forums, etc.) can be linked to a range of genres, some of which are specific to the technological medium (e.g. SMS texting) and some are not (e.g. memorandum). Knowledge of genres gives learners a sense of organization beyond the sentence and paragraph level and allows them to make connections between social purposes, interactions they observe or participate in online, and what they learn in their language classes. On the other hand, mismatches of genres can render intercultural communication problematic (e.g. Kramsch and Thorne 2002; Hanna and de Nooy 2009).

Just as EMC is too broad to be linked to a single genre, it also cannot be tied to any particular register. Registers are varieties of language that relate to features of situational context. Halliday (1978) describes situational context in terms of 'field' (what is taking place), 'tenor' (who is taking part), and 'mode' (channel of communication). The EMC mode (email, blog, chat, etc.) thus plays a role in influencing linguistic form, but it is not the only factor involved; the particular social and cultural contexts, purposes, and demands of a given act of communication will always influence the particular form it takes. Within the mode of 'email', for example, one finds chatty, conversational messages and formal administrative communications.

From a teaching perspective, many instructors note that learners' language use in EMC environments is often less correct, less complex, less coherent than the language they use in their formal written assignments. Herring (2013) points out that non-standard features are generally not due to inattentiveness or ignorance of the standard forms but are often deliberate choices to minimize typing effort, to imitate speech or sounds, or to be stylistically inventive. Warner's (2004) work on language play corroborates this view by showing how learners of German used code-mixing in their synchronous chat sessions. Crystal (2006) adds that simplification (e.g. omission of prepositions, copulas, auxiliary verbs) is not just a matter of typing economy but likely represents dialect features, reflecting the pressure to accommodate many diverse group members.

Such tendencies in online discourse create tensions for teachers intent on helping their students develop proficiency in standard forms of language. Because language learners may not have any intuitions about what constitutes standard versus non-standard forms, they may end up learning the non-standard forms rather than the standard ones (Crystal 2006). From a pedagogical standpoint, this raises the issue of teaching students how to discern among standard, non-standard, and hybrid uses and how to use different registers appropriately in different communicative contexts.

Current applications and practices

Digital technology affords a panoply of uses for language teaching (see Blake 2013; Blake 2016; Golonka et al. 2014; Kern et al. 2016 for recent overviews; see Williams et al. 2014; Trinder 2016 for surveys of how language learners actually use digital tools; see Meskill et al. 2020 for a survey of language educators' professional vision regarding the use of technology). This section will focus on three major areas of current interest in the field: remote, distance, and blended learning; intercultural online encounters; and community participation (social media, games, and virtual worlds).

Remote, distance, and blended learning

Remote instruction is familiar to all those who taught or learned online during the pandemic, when intact face-to-face classes were moved to Zoom or other videoconferencing platforms. Instructional materials and presentation modes were modified to adapt to the new medium of interaction (involving both synchronous and asynchronous modalities), but student learning outcomes and the notion of a 'class' as a real community were maintained as much as possible, with active student participation and immediate feedback being key features of language learning. Distance learning, on the other hand, is the modern equivalent of correspondence courses, designed expressly for online learning, with a focus on effective delivery of course content, and generally does not aim to create a classroom community. Distance learning is often more flexible than remote instruction, and many learner activities can be done according to learners' schedules, allowing them to self-pace, which fosters learner autonomy. In recent years, the number of distance learning programs has mushroomed, and most are now Internet-mediated. Even before the pandemic, more than 20 million students in the US took one or more online courses (Seaman et al. 2018).

'Blended' or 'hybrid' learning environments typically involve a distance learning component but also traditional face-to-face teaching (and sometimes out-of-class learning). As online and self-directed learning components have become more common in foreign language teaching, blended learning is increasingly becoming the norm in university level courses.

The use of multimedia (Mayer and Fiorella 2021; Hauck and Youngs 2008; Hauck and Satar 2018) together with EMC is exemplified in courses such as *Spanish Without Walls* (Blake and Delforge 2007), *Arabic Without Walls* (Shiri 2004), and languages taught at the Open University. EMC is essential to such courses, as it allows interaction and feedback between learner and teacher, as well as among learners. However, Blake (2005) underlines the importance of training for both instructors and students in dealing with the idiosyncrasies of audiographic EMC, such as time lags, overlapping turns, knowing when to write and when to speak, and so on.

Finally, while most research has been done on the use of technology in formal instructional contexts, there has been growing interest in how language learners use technology in informal or beyond-the-class contexts, often referred to as 'learning in the wild' (Godwin-Jones 2019; Sauro and Zourou 2019; Thorne et al. 2021).

Online intercultural encounters

School pen pal exchanges and even multimedia exchanges have existed since at least the 1920s, when Célestin Freinet established the Modern School Movement in Europe. Since the development of the Internet, such exchanges have gained an unprecedented immediacy, especially through videoconferencing technology (Kern and Develotte 2018). Long-distance collaborations involving two or more classrooms, usually in different countries are often referred to as telecollaboration or virtual exchange (for a discussion of these labels, see Colpaert 2020; O'Dowd 2021). These international partnerships generally place an emphasis on culture in language use and learning.

One of the best known and most longstanding projects is *Cultura* (cultura.mit.edu). Developed in the late 1990s by Gilberte Furstenberg and her colleagues, *Cultura* is a set of online modules designed to encourage language learners from different countries to engage in dialogue about the concepts, values, beliefs, and attitudes that undergird their respective cultures and language use (Furstenberg and English 2016; Furstenberg et al. 2001). The idea is not to transmit culture but to problematize it by juxtaposing materials, interpretations, and responses to interpretations. In addition to working extensively with a wide variety of texts, questionnaires, images, and films, students 'meet' in an online forum that gives them time to read, think, and formulate their answers to their correspondents' questions. Their discussion of these questions leads to new questions, feeding an ongoing cycle of reflection, discussion, and further reflection.

A number of studies have found promising results regarding the viability of online encounters for developing intercultural competence and understanding (O'Dowd and Lewis 2016; Stickler and Emke 2011; Chun 2011; Guth and Helm 2010). Other studies show, however, that intercultural contact in and of itself does not necessarily lead to cultural understanding. Learners' language ability, linguistic style, academic cultures, and institutional and cultural characteristics can affect their negotiation of meaning and cultural understanding (Belz 2002, 2003; Belz and Müller-Hartmann 2003; O'Dowd and Ritter 2006). More subtle yet significant factors are differences in communicative medium and communicative genres. For example, Ware (2005) found that the asynchronous discussion tool she used in a German-American telecollaborative exchange contributed (because of delayed response time and no consequences for dropping topics) to a disengagement she calls 'missed communication'. Kramsch and Thorne (2002) question the very premise that the kind of communication found in intercultural EMC exchanges fosters intercultural understanding. In their analysis of a conflictual French-American email exchange, they propose that a clash in cultural frames and communicative genres, not just linguistic misunderstandings, is what hindered the students' ability to establish common ground for cross-cultural understanding. What needed to be negotiated, they argue,

'was not only the connotations of words . . . but the stylistic conventions of the genre (formal/informal, edited/unedited, literate/orate), and more importantly the whole discourse system to which that genre belonged' (2002: 98).

In recent years, online encounters have incorporated web-based videoconferencing, allowing participants to see and hear one another. Whereas written EMC exchanges are mediated by words, symbols, and their timing and layout, desktop videoconferencing adds voice, gesture, gaze, movement, and images of a physical setting framed by a webcam, which offers advantages as well as constraints for language learning (Kern and Develotte 2018; Saito and Akiyama 2017; Kern 2014; Kern and Malinowski 2016).

In sum, intercultural EMC studies indicate that just putting people together to communicate does not ensure cultural understanding, which depends on a negotiation of differences in genres, interaction styles, local institutional cultures, and culture more broadly. When designing exchanges for language learning purposes, teachers or researchers on both sides therefore need to determine how they will make students aware of this broad range of potential differences and what kinds of opportunities for negotiation they will provide.

Community participation (social media, games, and virtual worlds)

The Internet offers a wide range of opportunities for learners to participate in various sorts of online communities. Three broad categories that we will consider here are social media, games, and virtual worlds.

Whereas the early Internet was essentially populated by 'read-only' materials, Web 2.0 ushered in a shift in emphasis from publishing to social participation, whereby people engaged one another by tagging, liking, friending, and posting on social media platforms.[1] Over time, social media sites such as Wikipedia, Facebook, Twitter, YouTube, and Instagram developed – and their entire content was dynamically produced by literally billions of users.[2] This was the first time in history that ordinary people could create widely disseminated content and communicate with potentially hundreds, thousands, or even millions of people around the world. Everyone became a potential creator and commentator on others' creations, and in educational contexts, teachers were no longer gatekeepers of information.

As in the case of online intercultural encounters, use of social media platforms requires thoughtful teacher involvement to maximize learning opportunities. For example, Jin (2015) emphasized the need for teacher feedback regarding learners' intercultural experiences in Facebook exchanges, giving learners the opportunity to take a step back and reflect on their cultural values and behaviours in relation to those of their interlocutors.

Discussion forums are a potential goldmine for language learning since learners can become involved in discussions in the target language on any conceivable topic of interest – thereby capitalizing on any areas of personal expertise they might have and boosting their motivation and degree of engagement. However, forums are generally not designed for language learning and therefore pose potential risks to learners who are attempting to enter into discussion with experienced users who may have little patience for those who are still learning the language. A collection of case studies by Hanna and de Nooy (2009) provides excellent coverage of this important topic. Underscoring the importance of communicative genres, they show that the ease with which learners enter into discussion with native speakers can be deceptive, precisely because what constitutes the genre called 'discussion' is not universal but varies across cultures and across mediums. In the context of online forums, Hanna and de Nooy show that politeness and linguistic accuracy prove to be much less important than a willingness to be socialized into the discourse rules of a particular online community. This means we must understand

communicative competence as a relative construct, shaped by the conditions and constraints of particular communicative contexts.

Computer-mediated games provide a different kind of environment for language learning. Reinhardt (2019) offers a useful guide to the theory and practice of using games as ecologically valid and effective means of promoting language learning, reminding readers of the universality and fundamental humanity of play – and how important it is to learning. Thorne et al. (2012) consider the affordances of massively multiplayer online games (MMOGs), which require players to communicate and collaborate with other players in order to achieve certain goals. Moreover, players regularly consult external sources before, during, and after gaming sessions. In their survey of Dutch and American *World of Warcraft* players, they found that players frequently look up information on how to complete certain tasks, how to optimize their characters, how to strategize, and how to find other kinds of useful background information. Reading research suggests that this kind of just-in-time purpose-driven reading is ideally supportive of learning because of readers' high-level motivation and engagement. Reinders and Wattana (2014) found that language learners' willingness to communicate and their self-confidence were enhanced after six gaming sessions, and Chik (2014) identified autonomy and the support of extended online gaming communities as key ingredients of gaming that facilitate language learning.

Similar in certain respects to gaming is participation in virtual worlds such as Second Life, Open Life, Active Worlds, or There. These are multimedia simulated 3D environments in which one navigates (walking, jumping, or flying) by means of a user-configurable online avatar. 'Speaking' to other avatars or to bots (resident robots) is usually done in writing (with cartoon-style speech bubbles appearing above avatars' heads), although voice chat has recently become the default mode in some environments. Unlike games, the 'content' of virtual worlds is mostly created by users themselves with the tools and infrastructure provided by the company that has designed the product. Meeting and interacting with other people (i.e. their avatars), acquiring virtual goods, and designing one's own custom environment are the chief activities in these environments. Given the essentially social nature of these worlds, and the widely international provenance of their 'residents', many teachers and researchers see them as exciting sites for language learning.

Deutschmann et al. (2009) assessed the affordances of Second Life for developing the oral/aural abilities of their graduate students. To their surprise, they learned that the limited expressive qualities of the avatars was actually beneficial since students reported they had to focus more on 'the speaking and listening aspects of language' (p. 210). They also found that focused role-play tasks that worked well in the classroom were not successful in Second Life, perhaps because of the distraction of dealing with the interface (the 'human-machine' part of communication), which reduced attention to the 'human-human' communication (p. 223). Consequently, Deutschmann et al. recommend that teachers train students in the particular technical and social dimensions of the virtual world environment before launching into learning tasks. Other studies on Second Life and other immersive environments include Chen (2018), Jauregi et al. (2011), and Wang et al. (2021), and Liao and Lu (2018) explore the potential for using telepresence robots to provide authentic communicative practice for remote language learners. Development in virtual reality, augmented reality, and assisted reality (Blyth 2018; Kessler 2018) is undergoing rapid change and will be an important area to watch.

Future directions

Millennia old, the relationship between technology and language learning has never been as complex or as interesting as it is today. The accelerating diffusion of digital media and wireless

networks, together with the increased naturalization of EMC, promises that technology-supported language learning will remain a critical area for teaching and research.

As online environments become increasingly multimodal with high-resolution image, voice, and sound, our resources for expressing culture and representing ourselves online expand correspondingly. More than ever, we need to remain attuned to the subtle interactions between medium, genre, register, and culture so that language learners can be prevented from jumping to facile conclusions about the 'correct' way that L2 speakers think, feel, express themselves, and so on. The broader the variety of modes of communication, the richer students' interpretive base will be, but teachers need to consider how the different groups involved relate to the electronic medium itself as a cultural tool of communication, in order to better understand how cultures of use (Thorne 2016) might affect intercultural communication.

On a related note, we will need more critical explorations of how culture is understood in online environments. In the case of games and virtual worlds, whose culture is expressed? Is there only the simulational (and commercial) computer culture? In the case of online exchanges, terms such as *cross-cultural*, *intercultural*, and *transcultural* have been used rather interchangeably, and the task of educators will be to refine the terms and develop viable methodologies and theories for examining issues of (pluri)cultural representation, identification, and contact in contexts that increasingly blur the distinction between 'online' and 'offline'.

'Big data' studies of learning (Godwin-Jones 2021) will undoubtedly become more common, but because communicative environments are shaped by the cultures of their inhabitants, ethnographic research remains of key importance. Miller and Slater (2000) advocate what they call a 'comparative ethnographic' approach that centres on the dynamics of objectification, mediation, normative freedom, and positioning.

To effectively study such dynamics, a great deal more longitudinal research is needed (Van Deusen-Scholl 2008). Tracking language learning through year-long or multi-year studies helps mitigate concerns about how the novelty of technology might affect learner outcomes and provide a more adequate basis for understanding how language learning might transfer across skill areas. This is especially important in studying autonomous learners outside of formal instructional contexts (Godwin-Jones 2019). 'School' versus 'home' uses of computers is becoming a meaningless distinction, and some of the richest learning environments may not be at all 'pedagogical' in purpose.

Finally, given the rapid evolution of technologies and the fluidity of communicative environments, teachers face increasingly complex decisions related to teaching with technology. Success in technology-mediated projects has been repeatedly shown to depend largely on teachers' efforts in coordinating learners' activities, structuring language and content, and helping learners to reflect critically on language, culture, and context. But keeping on top of project goals, activity/task design, technology interface, and the management of often complex logistical realities is challenging, and flexibility is a key asset. Teachers also need to know how technology can constrain and enhance their students' language use and know when it is better *not* to use computers.

Related topics

corpus linguistics; language socialization; language and culture; language learning and language education; SLA; language teaching methodology; multimodality; language teacher education

Notes

1 In a US national survey, 57% of teens reported having made a new friend online (Lenhart et al. 2015).
2 As of January 2021, Statista (2021) estimates that 4.66 billion people were active Internet users, encompassing 59% of the global population. An estimated 3.6 billion people were using social media in 2020, and global use is projected to increase to almost 4.41 billion by 2025.

Future reading

Belz, J. A. and Thorne, S. L. (eds.) (2006) *Internet-Mediated Intercultural Foreign Language Education and the Intercultural Speaker*, Boston: Heinle & Heinle. (Looks at the sociocultural and sociopolitical embedding of Internet-mediated language and culture learning partnerships in French, German, Spanish, EFL, and Russian from a variety of theoretical and methodological perspectives, including model learning, reflective practice, learner corpus analysis, cultural studies, ethnography, interactionism, and critical theory)

Chapelle, C. A. and Sauro, S. (eds.) (2017) *The Handbook of Technology and Second Language Teaching and Learning*, Oxford: Wiley-Blackwell. (A one-stop resource for those interested in how technology is integrated in the teaching and learning of specific skills and how new pedagogies, concepts, and practices have developed in recent years)

Lamy, M.-N., and Zourou, K. (eds.) (2013) *Social Networking for Language Education*, Basingstoke: Palgrave Macmillan. (A good mix of theoretical perspectives and empirical case studies on the use of social media platforms in foreign language education, with particular emphasis on identity development, social construction, and online community building)

Reinhardt, J. (2019) *Gameful Second and Foreign Language Teaching and Learning: Theory, Research, and Practice*, Cham, Switzerland: Palgrave Macmillan. (The most comprehensive starting point for those interested in all aspects of digital games and gameful designs [i.e. elements of games that make them engaging and motivating that can be woven into classroom activities])

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5

Teacher communities of practice

Simon Borg

Introduction

In the context of broader concerns with improving the effectiveness of language teacher development, this chapter focuses on collaborative teacher learning and, in particular, on approaches to collaboration that emphasize the notion of teacher communities. While the issues that are reviewed will be relevant to second language teacher development (SLTD) contexts generally, the analysis is informed largely by my international experience of in-service work in the field of English language teaching (ELT). Following an overview of the emergence of second language teacher education (SLTE) as a field of activity and research, key characteristics of effective professional development are briefly outlined, followed by a more specific analysis of the features, benefits, and challenges of two kinds of teacher learning community (*emergent* and *designed*). This analysis will inform recommendations for how such communities can be implemented to support the professional development of language teachers.

Historical overview[1]

Schulz's (2000) review of articles about foreign language (FL) teacher development published in the *Modern Language Journal* between 1916 and 1999 suggests that methodology courses for FL teachers in the USA were available in the 1920s. The first teacher training course for English as a foreign language (EFL) teachers, however, only started in London in 1962 (Haycraft 1988). These courses were the precursors of the certificate-level TESOL (teaching English to speakers of other languages) qualifications that exist today in the form of the Cambridge Assessment English's CELTA and Trinity College's CertTESOL (see Howatt and Widdowson 2004 for a brief comment on the emergence of these courses).

The 1960s also witnessed the emergence of applied linguistics as a field, and 'with it came a body of specialized academic knowledge and theory that provided the foundation of the new discipline. This knowledge was represented in the curricula of MA programs, which began to be offered from this time' (Richards 2008: 159). On such programmes, professional development as a language teacher largely entailed becoming familiar with the latest theory and

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research in applied linguistics; it was assumed that such knowledge would enhance teachers' classroom practices.

As a field of inquiry (i.e. one which is systematically researched and theorized), it is only in the last 30 years that SLTE has emerged. In 1990, Richards and Nunan (1990: xi) wrote that

> the field of teacher education is a relatively underexplored one in both second and foreign language teaching. The literature on teacher education in language teaching is slight compared with the literature on issues such as methods and techniques for classroom teaching. Few of the articles published in the last twenty years are data-based, and most consist of anecdotal wish lists of what is best for the teacher.

The publication this extract comes from was a landmark in the development of SLTE. Firstly, it acknowledged the limited empirical basis of SLTE and stressed the need to address this. Secondly, this text argued for a new view of the education of language teachers, which it summarized as follows:

- a movement away from a 'training' perspective to an 'education' perspective and a recognition that effective teaching involves higher-level cognitive processes, which cannot be taught directly
- the need for teachers and student teachers to adopt a research orientation to their own classrooms and their own teaching
- less emphasis on prescriptions and top-down directives and more emphasis on an inquiry-based and discovery-oriented approach to learning (bottom-up)
- a focus on devising experiences that require the student teacher to generate theories and hypotheses and to reflect critically on teaching
- less dependence on linguistics and language theory as a source discipline for SLTE, and more of an attempt to integrate sound, educationally based approaches
- use of procedures that involve teachers in gathering and analyzing data about teaching.

(Richards and Nunan 1990: xii)

These perspectives on SLTE have been developed through a number of publications since; some early ones were Wallace (1991), Flowerdew et al. (1992), and Richards and Lockhart (1994). Further contributors who have extended our understandings of what it means to become and develop as language teachers are Freeman and Richards (1996), Richards (1998), Tedick (2005), Johnson (2000), Johnson (1999), Johnson and Golombek (2002), Tsui (2003), Woods (1996), Borg (2006), Farrell (2008), Malderez and Wedell (2007), Bailey (2006), and Johnson (2009), as well as and the collection of 30 chapters on SLTE by Burns and Richards (2009). Many of these sources which pre-date 2000 were reviewed in Crandall (2000), who identified four trends characterizing the SLTE literature in the 1990s. These were:

- a shift from transmission, product-oriented theories to constructivist, process-oriented theories of learning, teaching, and teacher learning
- efforts . . . to transform teaching through a focus on situated teacher cognition and practice and the development of concrete, relevant linkages between theory and practice throughout the teacher education program
- a growing recognition that teachers' prior learning experiences play a powerful role in shaping their views of effective teaching and learning and their teaching practices

- a growing concern that teaching be viewed as a profession (similar to medicine or law) with respect for the role of teachers in developing theory and directing their own professional development through collaborative observation, teacher research and inquiry, and sustained in-service programs.

(Crandall 2000: 34–36)

This list and that from Richards and Nunan (1990) overlap in certain respects; together they provide a summary of key themes in SLTE in the 1990s. These themes remain of relevance today, where sociocultural and discursive perspectives on language teacher education continue to be advocated (for example, Johnson and Golombek 2016; Li 2020) alongside reflective and inquiry models of professional growth amongst language teachers (for example, Mann and Walsh 2017; Borg and Sanchez 2015). More recent volumes, such as Walsh and Mann (2019), provide further confirmation that SLTE is now an established field of inquiry in its own right, as well as highlighting the vast range of issues that characterise the field. In this chapter, I will focus on one specific issue, teacher collaboration, which has long been recognized as a positive aspect of teachers' work and growth. The final bullet in the summary of Crandall's conclusions highlights this, while Burns (1999), for example, wrote about *collaborative* action research for language teachers over 20 years ago. Several of the professional development activities recommended in Richards and Farrell (2005) are also collaborative in nature. Today, the OECD's Teaching and Learning International Survey (TALIS) identifies collaboration as one of the five pillars of teacher professionalism and, according to the 2018 TALIS results, over 70% of participating lower secondary school teachers felt that collaboration was a feature of effective professional development work (OECD 2019). Creating conditions that are conducive to teacher collaboration is thus clearly a desirable goal of educational systems generally, and I would like to explore this issue with particular reference to the notion of teacher learning communities in SLTD contexts.

To provide a broader context for what follows, a brief review will first be provided of what the contemporary literature says about effective teacher professional development. I will focus largely on work published since 2010; as already noted, seminal SLTE work in from the 1990s has been reviewed and discussed elsewhere (Crandall 2000; Richards 1998; Richards 2008; Borg 2003; Freeman 2002), while the period between 2005 and 2009 was reviewed in Borg (2011), which appeared in the first edition of *The Routledge Handbook of Applied Linguistics* (Simpson 2011).

Effective teacher development

One important point to make from the outset here is that the many varied global contexts for L2 teaching mean that there cannot be one single universally applicable formula for success in SLTD. Thus, while it is important (and necessary in the continuing absence of a sufficient volume of evidence specific to our field) to ground discussions of SLTD in what is known about teacher development more generally, the purpose of this exercise is to identify contemporary trends which can be critically appraised for their relevance to SLTD rather than to discover any transferable template for success. This is a critical issue for anyone responsible for the design of SLTD: while an understanding of key underlying theoretical principles (for example, regarding how teachers learn) is important, the ability to deploy these in a manner that is contextually appropriate is equally essential. With this in this mind, some key insights into 'what works' from the mainstream teacher development literature will be considered, though here, too, limitations in the evidence available must be acknowledged: 'inevitably, the highest quality, and therefore most expensive evaluations tend to be associated only with the largest programmes

of activity' (Weston and Hindly 2019: 61). Additionally, much evidence of the effectiveness of SLTD programmes appears in evaluation reports that are not in the public domain and which, therefore, are not included when reviews of 'what works' are undertaken.

Nonetheless, drawing on an extensive body of work, Borg (2015: 544) concluded that there was an emerging consensus around several features of teacher development that allow it to 'achieve positive and sustained impacts on teachers, learners and organizations'. These features are listed in Box 1.

Box 1: Features of effective teacher development (Borg 2015: 544)

- It is seen by teachers to be relevant to their needs and those of their students.
- Teachers are centrally involved in decisions about the content and process of professional learning.
- Collaboration and the sharing of expertise among teachers is fostered.
- It is a collective enterprise supported by schools and educational systems more broadly.
- Exploration and reflection are emphasized over methodological prescriptivism.
- Expert internal and/or external support is available.
- Classrooms are valued as a site for professional learning.
- Professional learning is recognized as an integral part of teachers' work.
- Classroom inquiry by teachers is seen as a central professional learning process.
- Teachers are engaged in the examination and review of their beliefs.
- Adaptive expertise is promoted.
- Student learning provides the motivation for professional learning.
- Teachers experience the cognitive dissonance that motivates change.

More recent analyses from the mainstream literature provide continuing support for such conclusions. For example, Weston and Hindly (2019) examined seven reviews of effective teacher development published between 2015 and 2018 and identified the following recurrent facilitative features:

- professional learning should be iterative, with opportunities to apply learning in real practice, reflect and improve over time
- professional learners should see the relevance of the training to their job requirements and to their professional goals and aspirations
- development should be designed with a focus on impact on students, with formative assessment built in for participants
- organisational leaders and facilitators need to create and protect the conditions for learning, e.g. time and space, while identifying and removing barriers such as workload
- organisational leaders should demonstrate and encourage alignment between PD and wider goals/approaches, actively encouraging and supporting the buy-in of participants.

(p. 64)

With specific reference to the focus of this chapter, this analysis also noted that most reviews of effective professional development supported the idea that collaborative learning was beneficial.

Overall, the lists above indicate that the literature on teacher professional development supports approaches that emphasise job-embedded learning (Zepeda 2019), reflective practice (Mann and Walsh 2017), teacher cognition (Borg 2019), and collaboration. It is the last of these that I will focus on in the rest of this chapter.

Collaborative teacher development

Johnston (2009) argued that teachers can *only* develop effectively when they do so together. While I would not want to underplay the potential for growth that more individual forms of teacher development offer, there is strong support in the literature (see Box 2) for the value of encouraging teachers to learn together.

Box 2: Collaborative professional development

'It is improvement in social capital among existing teachers as professional communities that will yield the greatest and most immediate returns' (Hargreaves 2014: 15).

'Teaching improves most in collegial settings where common goals are set and expertise is shared' (Darling-Hammond 2013: 150).

'Professional learning [is] steady, intellectual work that promotes meaningful engagement with ideas and with colleagues over time' (Lieberman and Miller 2014: 9).

'Professional learners should engage in structured collaborative learning focused on problem solving and enquiry' (Weston and Hindly 2019: 64).

Collaborative teacher development can take many forms: reading groups, lesson study, social media groups, teacher learning communities (my focus here), peer observation, curriculum study, mentoring, reflective partnerships, team student performance reviews, and collaborative action research. Readers are encouraged to explore further items in this list which may be less familiar, but what these strategies share is an emphasis on teachers learning together, from one another and over time (collaborative professional development is a necessarily extended activity).

An important influence on developments in collaborative professional development has been Wenger's notion of 'community of practice' (CoP). A CoP is 'a group of people informally bound together by shared expertise and passion for a joint enterprise' (Wenger and Snyder 2000: 139). CoPs have also been defined as 'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly'.[2] CoPs thus have five core features: a group, shared interests, a concern with practice (doing), regular interaction, and learning. In education, CoPs are often described using the terms 'professional learning communities' (PLCs) (Watson 2014) and 'teacher communities' (Vangrieken et al. 2017). While the conditions that characterise teacher CoPs can vary enormously (including, for example, whether they operate within a school or more broadly and virtually or in-person) the literature does suggest that this form of collaborative professional development can contribute effectively to teacher change (see Vangrieken et al. 2017 for a systematic review of 40 studies).

A distinction can be made between *emergent* and *designed* teacher CoPs. In the former, which reflects the way CoPs were originally conceived of, the community is created organically and led by teachers themselves. However, there is increasing evidence of teacher CoPs which are formally initiated (by, for example, a ministry of education or teacher development

project provider) and which teachers then participate in. These two forms of teacher CoPs will now be discussed.

Emergent teacher CoPs

In their discussion of teacher networks, Padwad and Parnham (2019) discuss a form of emergent teacher CoPs called English teacher clubs (ETCs). They define these as

> small close-knit groups of teachers, characterised by friendliness, informality, an absence of hierarchy, and a mixture of amateur and professional interests. They are essentially voluntary groups of teachers coming together to help each other address their concerns and improve themselves as teachers.
>
> *(p. 556)*

According to Padwad and Parnham, anecdotal evidence exists that ETCs operate in many countries, though research into their effectiveness is limited (this is perhaps an inevitable consequence of their informal nature). Drawing particularly on their experiences in India, the authors argue that the most prominent mode of working in teacher clubs is talk: 'sharing of feelings and concerns, exchanging ideas and experiences, supporting with suggestions and advice are the essence of co-existence and take a large amount of time and space in ETCs' (p. 557). The self-managed nature of ETCs is also emphasized, with teachers being responsible for how they operate and what they discuss. Meetings occur frequently, but they are 'not very structured or agenda-driven' (p. 557). Positive interpersonal dynamics are another feature of ETCs (and of effective teacher CoPs generally).

Padwad and Parnham single out personalization and individualization as key benefits of emergent teacher CoPs. The flexible, informal, and teacher-led nature of ETCs allows teachers to decide what is important for them and provides them with the space to address issues that are of personal relevance. The range of possible areas for professional development is thus unlimited, ranging from the improvement of teachers' own language skills to practical classroom strategies and other facets of their work as teachers. In common with analyses of teacher CoPs more generally, it is also claimed that ETCs enhance teachers' sense of autonomy and create a safe space within which members are able to talk freely about concerns and challenges.

Padwad and Parnham also highlight a number of challenges that arise in the context of ETCs. Sustainability is a major issue, as ETCs may not survive as a result of ineffective leadership and coordination, shortage of resources, dwindling motivation among participants, teacher workloads and lack of external recognition for teachers' efforts. These are important points to note: while it is tempting to romanticise the idea that teachers will organically form CoPs and be able to sustain them entirely autonomously, the reality in many educational contexts around the world is that this is unlikely without a supportive infrastructure. The notion of a wholly flat hierarchy in teacher CoPs must also be viewed critically; it has been noted in the literature (Vangrieken et al. 2017) that effective leadership is a feature of successful CoPs and ETCs will also benefit from the presence of one or more teachers who assume a coordinating role.

Designed teacher CoPs

Designed teacher communities retain the core features of CoPs more generally: they engage groups of teachers (typically from the same context – i.e. district, state, or even country) in regular interactive meetings during which shared aspects of teaching and learning are discussed,

leading to practical ideas which teachers can take back and try out in their classrooms. Positive social dynamics and creating safe and trusting environment for teachers to discuss their work also remain central. In contrast to emergent forms of teacher CoPs, though, designed teacher CoPs are initiated externally and set up within pre-determined parameters. For example, the number of meetings and their frequency, structure, and content may be decided with limited input from teachers. Designed CoPs are also often applied at scale; the National Teacher Training programme in Egypt,[3] for example, involved over 20,000 teachers working across the country (in groups of around 30). Borg et al. (2020) analyzed six designed teacher CoPs delivered by the British Council,[4] and in the following section I summarise key points from their analysis.

Features of designed teacher CoPs

In terms of their features, designed CoPs are characterized by a structure which regulates the stages teachers will go through during each meeting. The six projects analyzed by Borg et al. (2020) generally incorporated features shown in Figure 5.1.

During these designed CoPs, 'Share' focuses on discussing teachers' classroom experiences since the last meeting, while 'Read' and 'Watch' activities provide texts and videos for teachers to engage with and analyse. The final two stages of the meeting engage teachers in planning how to apply new ideas to their own classrooms. In the six CoPs that were reviewed, it was also recognized that it was necessary to sustain teacher momentum in between the monthly meetings, and for this reason, the CoP structure also involved two further stages: application of new ideas to the classroom and continued online interaction (typically on Facebook or WhatsApp) among teachers in between the monthly sessions. Alternative ways of organising designed CoPs are of course possible; the point here is that *structure* is one of their key features. This is

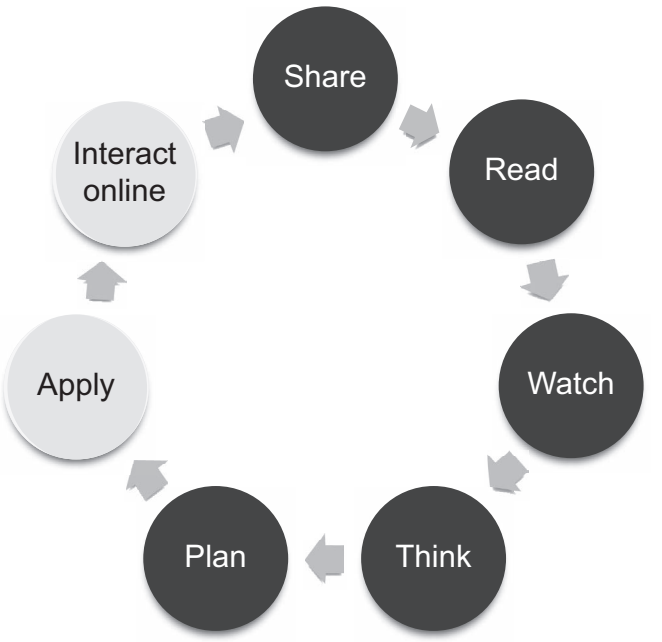


Figure 5.1 Structure of designed teacher CoPs

particularly important at the start of a new CoP process in order to give teachers and coordinators a process to follow during meetings.

Another feature of designed teacher CoPs is that, at least initially, a package of materials is provided for the teachers to work through (with guidance from a coordinator). It would be hoped that, over time, reliance on these externally provided materials would decrease; however, initially participants will value the availability of provided content (for example, it considerably shortens coordinators' planning time) and, where a CoP involves many teachers working in separate groups (such as the Tejas[5] project in India), pre-defined materials also allow for a more consistent experience across these groups. Of course, materials will ideally be designed or chosen (perhaps on the basis of a prior analysis) to reflect teachers' needs and interests. For example, Borg, Lightfoot, and Gholkar's analysis shows that while on the Tejas project the improvement of teachers' English language skills was a goal, on English for the Community[6] in Romania it was not, and this was reflected in the content of the respective materials provided for these two designed CoPs.

A third feature of designed teacher CoPs is a more formalized coordinator role. The coordinator's title may vary depending on local preferences (coordinator, teacher educator, and facilitator have all been used), but their common role is to support the CoP, administratively (by for example, scheduling sessions), academically (by facilitating the discussions during meetings and guiding teachers as they work through the materials), and by sustaining the group's momentum (through stimulating teacher online interaction between meetings). Coordinators play a central role in designed CoPs and should be chosen according to clearly defined criteria (these will vary across projects but will normally refer to candidates' teaching experience, qualifications, prior experience as teacher educators, and English proficiency). It is also essential that coordinators receive appropriate preparatory training for their role and, ideally, further ongoing support; while the former was a feature of all six designed CoPs analyzed by Borg, Lightfoot, and Gholkar, the latter was not allocated as much attention and an evaluation report for one of the projects recommended that 'the quality of TEs' [teacher educators'] work be monitored more closely, including the opportunity for them to receive feedback on their work at different points during the year, including, but not limited to, during formal training events' (Borg 2020: 57).

Benefits of designed teacher CoPs

The analysis conducted by Borg, Lightfoot, and Gholkar concluded that positive attitudes to designed CoPs were expressed by teachers, coordinators and local educational authorities across the six projects. More specifically, several benefits for teachers of this more structured approach to collaborative professional development were noted. These included increased levels of teacher confidence in the classroom and improved professional motivation; teachers also reported extending their range of pedagogical skills and strategies and learning about a wider range of resources to support learning. Further benefits highlighted by teachers who participated in designed CoPs were a greater sense of professional autonomy and more awareness of the needs and perspectives of their students. Teachers also felt that relationships with colleagues in the CoP had improved, allowing for more trusting and open dialogue.

Challenges in designed teacher CoPs

Despite generally being popular with teachers, the potential of designed teacher CoPs can also be weakened by a number of threats. According to Borg, Lightfoot, and Gholkar, these are mostly systemic in nature, related, for example, to limited awareness and understanding of CoPs

by school leaders (who subsequently do little to support teachers' attempts to innovate in their classrooms) or to the scheduling of CoP meetings (often in the evenings or at the weekend with no reduction in regular teaching workloads for teachers or coordinators). As with ETCs, sustainability is also a concern; designed teacher CoPs operate within time-bounded projects and when these end the support (such as materials) that projects provide is withdrawn. Evidence is not yet available to assess what happens once designed CoPs become more independently run by teachers but this will be an interesting issue to examine. Another challenge associated with designed CoPs is that teachers may become dependent on the external provision of materials. While it would be hoped that over time, this will reduce and content can be more teacher-generated, Borg, Lightfoot, and Gholkar found limited evidence that this was taking place. One final challenge for designed CoPs which can be noted here relates to the fact that teachers (in five of the six projects studied) were nominated by their employer rather than volunteers. Particularly on larger-scale teacher CoPs, this will inevitably mean that, at least initially, many teachers attend because they have to rather than because they want to. However, as I discuss elsewhere (Borg 2022a), compelling teachers to be part of a designed CoP does not necessarily mean they will not benefit from the process. On a designed CoP in Egypt, for example, initial negative attitudes became much more positive once teachers realized that the professional development was a positive experience for them (British Council 2019). My view is that teacher motivation is more important than teacher autonomy when it comes to professional development; in other words, if teachers find the process motivating and are willing to engage in it, they will be able to overcome any initial concerns associated with it being a requirement rather than a choice.

Moving teacher CoPs online

As a result of COVID-19, education generally and teacher education specifically have been forced to transition from conventional face-to-face modes of delivery to approaches that are largely or wholly remote or online. Online language teacher education is by no means a new phenomenon (Murray and Christison 2018), nor are online teacher communities (often called professional learning networks or PLNs). There have also been analyses of university-based teacher education programmes that have adapted to COVID-19 and moved online (Carrillo and Flores 2020). But less is known about the consequences for teacher CoPs of this transition from in-person to virtual ways of working. While in the context of a small emergent CoP it may not be particularly difficult to shift operations from physical meetings to Zoom sessions, WhatsApp chats, or Facebook groups (though even here challenges can arise, for example, if teachers are not accustomed to interacting online), going virtual with a formal CoP-based professional development programme that involves hundreds or thousands of teachers, formalized materials, compulsory attendance, and a large cohort of teacher educators can present very substantial challenges. This is an emergent area for research, but I can cite one experience to illustrate how moving a designed CoP online can be complicated by a wide range of factors. In this case, after one year of face-to-face activity in which hundreds of teacher groups had met on a monthly basis, in the second year operations were moved online and teacher educators facilitated teacher meetings via Zoom. Teacher attendance rates dropped by around 60%, and a closer examination of the reasons for this highlighted many conditions that were not conducive to effective online collaborative professional development programmes. Key obstacles were as follows:

- Limited technological infrastructure (especially good quality Internet)
- Lack of technological support for teachers (for example, no access to free Wi-Fi)

- Low levels of technological competence among teachers (for example, no experience of working with apps such as Zoom)
- Reliance on smartphones to get online
- Families sharing one device in a household, meaning that teachers could not use it whenever they needed to
- Financial constraints affecting, for example, teachers' ability and willingness to pay for data and devices
- An educational culture that highly values face-to-face social interaction
- An educational culture in which hard copies (not e-copies) of materials are highly appreciated
- Generally negative attitudes to learning online
- Lack of privacy at home, meaning that cameras and microphones often could not be kept on during sessions
- A general unwillingness by teachers to contribute orally during online sessions
- Variable skills among teacher educators for facilitating online professional development.

It is clear that these factors extend beyond immediate concerns with the design and content of teacher CoPs and necessitate a consideration of broader social, economic, and educational factors, such as how family life is organized (this can make working or studying from home difficult), attitudes to learning online, and access to technology. It is, therefore, critical that efforts to organize online CoPs be grounded in a systematic analysis of the prevailing conditions to ensure that the CoP is aligned with these and does not make unrealistic assumptions (for example, about how and when teachers will learn).

Recommendations for practice

The notion of professional development as a social enterprise is well-established, and it is widely acknowledged that teachers can learn effectively together and from one another. In relation to teacher CoPs, there is both theoretical support for their value in supporting teacher learning and practical evidence (as discussed, for example, in Borg et al. 2020) that they are seen by practitioners and educational authorities as a viable and sustainable way of improving teacher knowledge, skills, confidence, and collegiality. The challenge in practice lies in creating appropriate conditions for teacher CoPs to flourish and with this goal in mind there are three recommendations that can be made.

Firstly, it is useful to think about teacher CoPs on a continuum where emergent CoPs and designed CoPs represent contrasting positions which can be further distinguished with reference to several specific parameters, as shown in Table 5.1. Overall, then, while both forms of teacher CoP will share the goal of creating collegial, interactive spaces in which teachers can learn together regularly and over time, they differ significantly in terms of how centralized and formalized they are. Emergent teacher CoPs are teacher-led, voluntary, and loosely structured, while designed teacher CoPs are set up externally and regulated in a more central manner in terms of goals, content, and processes. Teacher CoPs can exist at different points on this continuum of control and structure; for example, a designed CoP may, within broad pre-defined parameters, still give teachers and coordinators (if not initially then after some time) a level of responsibility regarding content. The practical recommendation here is that, when teacher CoPs are being set up, it is important that an explicit rationale be articulated for the form that it will take. While it may be tempting to conclude that approaches which maximise teacher autonomy are necessarily more beneficial for teacher growth, this is not necessarily true, and

Table 5.1 Emergent and designed teacher CoPs

	Emergent CoPs	*Designed CoPs*
Decision-making	Internal	External
Content and materials	Informal/emergent	Formalized/pre-defined
Structure	Loose/flexible	Staged
Coordinator role	Non-hierarchical	Formalized (trained)
Attendance	Voluntary	Compulsory
External monitoring	Low	High

as I will discuss, there will be cases where participants will benefit more from a degree of structure and direction.

The second recommendation here is that individuals responsible for creating and supporting teacher CoPs recognize what is known about effective professional development and draw on this insight accordingly. Teacher CoPs are more likely to support professional development and change in the classroom when the following conditions exist.

1 Effective support from the educational system in which teachers work, including from their schools
2 Realistic workload demands on teachers and coordinators, especially when their participation in a CoP is not offset by any reduction in their normal duties
3 Clearly defined and realistic hoped-for outcomes that shape decisions about the content of the CoP and the kinds of work teachers do during and in between regular meetings
4 Materials and content that are clearly linked to what teachers do in their classrooms and which increase the relevance of the CoP and teachers' motivation to take part in it
5 A focus on developing a positive, trusting, and collegial professional learning environment
6 Carefully selected coordinators who are given the support they need to develop effective facilitation skills
7 Structured opportunities for teachers to develop their reflective skills
8 For teachers and coordinators, access to and the skills to use the technology which facilitates online networking and professional development
9 Effective identification and engagement of key stakeholders so that they are supportive of teacher CoPs.

It is also essential, though, and this is the third recommendation here, that teacher CoPs be set up in a manner that is contextually feasible and appropriate. Many teachers have not experienced teacher-led collaborative forms of professional development, and inviting such teachers to join a CoP and giving them the freedom to make all decisions about the running of the group will not be productive. In such cases, teachers will, especially initially, benefit from a certain degree of structure and external control (for example, in terms of content and materials). The example of an online CoP I discussed earlier also illustrates the need for decisions about teacher CoPs to be grounded in an understanding of the social, economic, and educational context that participating teachers work in. This is particularly true when the CoP – as in all the cases I have discussed here – involves teachers from one country – but is also relevant when an online CoP consists of a less homogeneous group of individuals.

Future directions

As already noted, COVID-19 necessitated that teacher CoPs operate increasingly online. While online teacher networks have existed for many years, these have typically been set up and populated by teachers who choose to and are comfortable collaborating with other teachers virtually. During COVID-19, though, one significant difference was that online delivery became the only viable option for many teacher CoPs and that individuals who had hitherto shunned virtual environments for professional development found themselves thrust (often as part of designed CoPs where attendance is compulsory) into a new learning milieu. At the same time, coordinators of CoPs were asked to acquire a new set of teacher educator competences (see, for example, Carrillo and Flores 2020; Knezek et al. 2019; Murray 2013; Borg 2022b) in order to facilitate CoPs online. Understandings of how teachers and coordinators made this abrupt transition to online modes of working during CoPs, the challenges they encountered and how these were addressed are at this stage limited and such issues provide clear direction for future research into teacher CoPs in SLTD contexts.

One further area of inquiry which merits more critical attention is the compromised nature of many designed CoPs. While educational authorities recognise the transformative potential of CoPs, they are often unable to translate official approval into practical commitment. Thus, for example, while it recognized that teachers benefit from working time to engage in professional development, supportive leadership within schools, trusting collegial relationships, recognition for their efforts to improve and space to experiment in their classrooms, designed CoPs (and other forms of centrally mandated CPD) often unfold in contexts where these are in short supply. In such cases, CoPs do operate but the constraints are such that questions must arise about their integrity and outcomes. As an issue for further inquiry, then, there is value in closer analyses of how teacher CoPs operate in inimical contexts and in exploring more feasible, albeit more restricted forms of collaborative professional development, that teachers can engage in productively in such contexts.

Conclusion

The purpose of this chapter was to discuss collaborative professional development with specific reference to teacher CoPs, which have been defined here as groups of teachers who meet (physically and/or online) and interact regularly to improve their professional competence. Teacher CoPs can be characterized as more or less emergent or designed depending on how externally regulated and structured they are. While in some contexts the organic, flexible, autonomous, and informal nature of emergent teacher CoPs enhances their appeal to teachers, the same features may limit the sustainability of such groups and the recognition they receive within the educational system. Designed CoPs provide an external and more formalized alternative within which teachers can learn collaboratively and which can be applied at scale. Decisions about whether emergent or designed CoPs are most appropriate need to be informed by a sound understanding of the target participants and the contexts they work in. Post-COVID-19, how teacher CoPs have transitioned to online modes of working is a particular contemporary facet of SLTD that merits further study.

Related topics

language teaching methodology; key concepts in language learning and language education

Notes

1 This section is based on Borg (2011).
2 https://wenger-trayner.com/introduction-to-communities-of-practice/
3 www.britishcouncil.org.eg/en/programmes/education/national-teacher-training-programme
4 The British Council calls its designed teacher CoPs 'Teacher Activity Groups' (TAGs).
5 www.britishcouncil.in/programmes/english/primary/tejas
6 www.britishcouncil.ro/en/programmes/society/english-community

Further reading

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Vangrieken, K., Meredith, C., Packer, T. and Kyndt, E. (2017) 'Teacher communities as a context for professional development: A systematic review', *Teaching and Teacher Education*, 61: 47–59. (This systematic review of 40 studies highlights different forms of teacher communities, the perspectives on them of various stakeholders, and several conditions for successful teacher communities)

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6

Curriculum and materials

Decolonization and inclusivity

John Gray

Introduction

This chapter takes it as axiomatic that the second language curriculum and the ways in which it is realized in pedagogical materials are invariably matters of political and ideological import. Both embody, at times explicitly and at times implicitly, a particular view of the social order, as well as the nature of language and the role of language(s) in society. With regard to the social order, an example would be the way in which a country's national curriculum might seek to transmit values considered to be important for its citizens, such as those seen as underpinning freedom, democracy, and human rights. However, before continuing, it is necessary to establish what is meant by curriculum. Somewhat confusingly, the term is often conflated with syllabus, and there are differing views as to the scope of what can actually be included under the heading of curriculum. However, for most scholars (e.g. Graves 2016; Richards 2013; Thornbury 2017), curriculum functions as the superordinate term:

> The curriculum is concerned with beliefs, values and theory (all of which may be captured in some kind of 'mission statement'). The syllabus represents the way these beliefs, values and theories are realised in terms of a step-by-step instructional programme. The curriculum is, therefore, both larger than the syllabus, and more general.
>
> *(Thornbury 2017: 74)*

From this perspective, curriculum is primarily a plan for teaching and learning and could be seen as distinct from what is actually taught or learned. However, Thornbury (2017) points out that many scholars (e.g. Johnson 1989; Nunan 1988; Applebee 1996) have taken the view that curriculum also entails the way in which the plan is interpreted and operationalized in actual classrooms. Equally important is the concept of the *hidden curriculum* (Bernstein 1996), which considers the selective nature of the plan and those aspects which are implicit or unspoken – for example, taken for granted ideas not only about language but also about gender, sexuality, race, class, and so on, as well as the erasure of various minorities and histories deemed inappropriate or unworthy of mention.

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While sharing the view that curriculum is best understood as a 'dynamic interplay' (Graves 2016: 80) of all of these elements, this chapter foregrounds the view that the curriculum-materials nexus needs to be viewed as the result of a complex set of political, ideological, and (frequently) commercial imperatives whose purpose is ultimately the production of subjects with very particular knowledge, skills, and dispositions (Apple 2019). From this perspective, the second language curriculum is something that cannot be viewed in isolation from the broader sociopolitical and economic context out of which it arises and which perforce entails more than language.

Historical perspectives

Curriculum

Much of the foundational work on the second language curriculum was done in the 1980s – but given that the philosophical and social values of national and institutional curricula necessarily vary depending on the political realities within which they are designed, this aspect of curriculum has tended not to be the focus of attention in applied linguistics. Thus, Breen and Candlin (1980: 89), in a key paper on what they refer to as the essentials of the communicative curriculum in language teaching, focus exclusively on language as an inherently variable meaning-making process, the manner in which it is to be taught and learned, and the ways in which it is to be assessed. Significantly, though, they state, with regard to the linguistic content of the curriculum, that they prefer to talk of 'target repertoire' instead of 'target language' – on the basis that '[t]he concept of "repertoire" . . . captures the fact that a speaker/hearer typically controls a selection of language varieties' (Breen and Candlin 1980: 108). As we shall see, this view of linguistic content is not one that prevailed in the ensuing years, as can be attested with reference to pedagogical materials. In the case of English, for example, textbooks produced for the burgeoning global market, represented language as largely invariant, ignoring almost completely the concept of repertoire. The same can also be said with regard to the commercialization of materials for the teaching of other modern foreign languages.

Subsequent publications, such as Nunan's (1988) monograph on the learner-centred curriculum and Johnson's (1989) edited volume on the second language curriculum, contributed significantly to the development of the field of curriculum studies in applied linguistics. Nunan's work was important in that it emerged from a collaboration with the Australian Adult Migrant Education Program and made a powerful case for the curriculum being focused on the language learners themselves, emerging ideally from ongoing negotiation between them and their teachers. Johnson's contributors explored the topic mainly in terms of syllabus design, needs analysis, implementation, and evaluation, with materials being considered under the heading of implementation. In a key chapter by Littlejohn and Windeatt (1989), the issue of the hidden curriculum was addressed explicitly as a problematic aspect of pedagogical materials, particularly regarding the stereotypical representation of women, people of colour and certain nationalities, as well as the reproduction of Cold War tropes. In doing so, they built on earlier work by Auerbach and Burgess (1985), which had identified the ways in which migrant and refugee learners of English were being prepared through language teaching materials for subservient social roles in the USA in the period following the Vietnam War. As we shall see, many of the concerns these scholars raised would eventually be taken up and explored in greater detail in the literature explicitly dedicated to materials analysis.

Historically, much attention in curriculum studies has been concerned with the concept of syllabus design and methodology. Graves (2016) identifies three main phases of curriculum

development, largely focused on syllabus, which she labels the linguistic wave, the communicative wave, and the third wave (while pointing out that there is considerable overlap between these). The first of these refers to a view of language as consisting mainly of a set of grammatical structures which are sequenced for learning in terms of perceived complexity. The second wave refers to the rise of communicative language teaching (CLT) in the 1970s–1980s (as noted earlier with regard to the communicative curriculum). This approach held that *communicative competence* was as important as the linguistic competence prioritized during the aforementioned linguistic wave. Hymes (1972), who introduced the term, took the view that the Chomskyan view of language (which then predominated) provided a partial view of language and what it meant to speak one. He made the case for a complementary communicative competence which entailed knowing 'when to speak, when not, and as to what to talk about with whom, when, where, in what manner' (Hymes 1972: 277). This view of language was taken up by scholars such as Canale and Swain (1980) and those who were influenced by the Council of Europe's advocacy of a functional-notional syllabus (Wilkins 1976) in which the focus was on using language in concrete situations to fulfil various functions such as inquiring, inviting, requesting, apologising, and so on. This proved to be extremely influential and led to the emergence of CLT, while in terms of syllabus and curriculum, it eventually evolved into the Common European Framework of Reference for Languages, which has been exported globally with great success. But as Graves points out, such a perspective on language and language teaching is not always appropriate for students in all settings. Indeed, some scholars have questioned the way in which communicative competence was rigidly schematized in foreign language teaching, losing sight of Hymes' original ethnographic orientation to language using (Leung 2005). Some students are learning foreign languages not necessarily to speak to others but to access written texts or educational content delivered through the medium of a second language in which the (main) aim may not be the development of communicative competence (however that is understood). Thus, Graves' third wave incorporates genre and text-based teaching and content-based learning. Approaches such as content and language integrated learning (CLIL) (Mehisto et al. 2008), English medium instruction (EMI) (Macaro 2018), and English medium education in multilingual university settings (EMEMUS) (Dafouz and Smit 2020) are examples of the curriculum being organized around non-linguistic content, and – certainly in the case of EMI and EMEMUS – not exclusively concerned with second language learning (although it is to be expected that language learning will occur).

Graves (2016) concludes her overview by suggesting that she anticipates the third wave to expand as more students begin to use a second language such as English as a *means* to access education and less as an *end* in itself. Such a development will necessarily entail a recalibration of second language syllabuses in such settings.

Materials

As pointed out in the previous section, while pedagogical materials are seen as integral to most understandings of curriculum, it was in the materials literature that many of the concerns about the hidden curriculum were taken up and explored more fully. This literature was initially concerned with textbook selection, but it soon underwent a significant transformation. Two currents emerged – one driven by Tomlinson (1998) focused on key pedagogical issues such as materials design, their evaluation, adaptation, and supplementation. A second current was initiated by a group of scholars who were concerned mainly with the sociopolitical and cultural aspects of second language teaching and the ways in which materials played a key role in the

reproduction of dominant ideologies. This second current, which had begun in the 1980s and proliferated from the turn of the century onwards, was interdisciplinary in its orientation and focused on materials analysis. It was given momentum by Dendrinos' (1992) study of ideology in the English language textbook – the first full-length book on the topic published from a critical theory perspective. Subsequent scholars working in this vein drew on a wide range of theoretical perspectives, including cultural studies, queer theory, Marxism, and critical pedagogy (e.g. Bori 2018; Copley 2018; Gray 2010a, 2013; Gray and Block 2014) – as well as addressing issues of representation (of nationality, race, and the world) more generally (Mohamed 2015; Pavlenko 2003; Risager 2018).

This body of work focused mainly on commercially produced materials and showed how textbooks in particular constructed highly selective and politically partisan views of the world for the contextualization of the language being taught, while at the same time interpellating language learners as would-be members of a world in which celebratory discourses of individualism, consumerism, entrepreneurialism, and free-market capitalism predominated. Gray (2010b) shows how textbooks for the teaching of English, from the 1990s onwards, increasingly associated it with young, attractive, cosmopolitan characters whose global mobility was unhampered by border controls of any kind. The following profile is typical of this kind of content.

> Roberto came from Acapulco to New York ten years ago. . . . But now he has a successful business with his three brothers and his sister. They run a soccer store in New Brunswick. . . . When asked why he came to the US, Roberto says without hesitation, 'Because I wanted to work hard and be successful.' He certainly works hard. He's at the store all day, then works as a driver in the evening. 'That's why I like America,' he says. 'You can be what you want.'
>
> *(Soars and Soars 2000: 19)*

The values which characters such as Roberto embodies are essentially those associated with neoliberalism – the evolving model of capitalism which has predominated across much of the world since the Pinochet coup in Chile in 1973 and the subsequent elections of Thatcher and Reagan (Harvey 2005). Thus, mobility and hard work, commercial initiative, individualism, and determination as values associated with (in this case) successful English language learning are repeatedly deployed to contextualize language. Accounts of migration triggered by persecution, poverty, war, and environmental depredation are eschewed in favour of those motivated by individual and entrepreneurial choice, while the lives of migrants (all of whom are represented as successful learners of standard English) are celebrated in terms of their spectacular financial success. In these textbook accounts, there is no racism, no struggle for acceptance, and no failure. Women too (certainly in Anglo-American materials aimed at the global market) are increasingly represented as fully emancipated from patriarchal constraints and in positions of power in the workplace – but with the struggles they have endured to gain equality with men entirely written out. Rather, their success is represented as invariably a matter of lifestyle choice. To a lesser extent this also applies to people of colour who, where they are represented, are also shown to be equally successful without any mention of the discrimination they have faced.

Collectively, these representational practices can be understood as drawing on the discourse of so-called progressive neoliberalism – namely, the gender-, race-, and ethnicity-based diversification of workplaces in terms of who rises to positions of power, alongside the celebration of neoliberal values which publishers describe as 'aspirational' (Gray 2010a). However, the representational regimes on display in most textbooks produced for the global

market are equally notable for their systematic erasures, and it is to this problematic issue that I now turn.

Critical issues and topics

If representation is understood as the multiple semiotic processes whereby meanings are made and received and individuals, groups, events, and so on are positioned, imaged, and linguistically constructed in the curriculum, erasure refers to the systematic editing out of certain categories of person, identities, events, injustices, and histories – as well as varieties of language – for ideological, cultural, or commercial reasons. Such practices raise two issues which cannot be neatly disambiguated – on the one hand, there is the representation of language for pedagogical purposes, and on the other, there is the representation of the world and its inhabitants. Regarding the former, it is notable that (as indicated) language in textbooks is represented as largely invariant with little or no attention being paid to dialectal variation or the concept of repertoire. As O'Regan (2021) explains in his analysis of the political economy of the global spread of English, what is valued by capital (and, by extension, those seeking to capitalize on the sale of language teaching products) is normative standard English. Although there *is* an inevitable tension between sociolinguistic descriptions of language and the teacher's need to make content teachable and learnable, it does not follow that language learners should be deprived of information about variation and exposure to samples of naturally occurring language produced by a range of language users. Many teachers interviewed by Gray (2010a), as part of a textbook study, were critical of the representation of language in the materials they used, particularly the narrow range of (almost exclusively L1) accents in the listening activities. The same study also revealed that where regional UK accents did feature, they tended to index gullible, antisocial, and criminal characters. While arguments have repeatedly been made to challenge such practices, mainstream publishers appear to be largely impervious to pleas from applied linguists for change.

With regard to the representation of the world and its inhabitants, the erasure of certain types and groups of people (and the language associated with them) renders a range of topics literally unspeakable, as well as constituting a denial of recognition. Recognition has been widely theorized by scholars who argue that its denial can be experienced as a form of symbolic violence by those on the receiving end of invisibilizing practices (Fraser and Honneth 2003). The materials literature has drawn attention to two systematically erased groups from contemporary textbooks – the working class and those who are lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ). Gray and Block's (2014) historical study of a set of English language textbooks dating from the 1970s to the early 21st century reveals a largely superficial treatment of class in general and a progressive editing out of working class characters and issues relating to working class life. They conclude by arguing that the cumulative erasure of the working class from these materials is linked to the rise of neoliberal ideology in which class itself is denied as a social fact – an ideology the textbooks actively promote. They also argue that this can be seen as a failure to educate students by providing them with a very skewed view of the world and an ideologically motivated withholding of concepts and vocabulary for thinking about it. The concomitant and equally pervasive erasure of LGBTQ characters and issues relating to non-normative gender and sexuality from the curriculum has received more extensive treatment in the applied linguistics and materials literature (see Banegas and Evripidou 2021). The *major silence* in this regard identified by Pennycook (2001) is not without consequences. Personal testimony by LGBTQ writers about the negative impact of such erasure points to the damage that can be done. As the queer Indonesian poet Norman

Erikson Pasaribu put it, as he recalled his experience of reading while growing up: '[w]hen you don't see yourself on the page, it's harder to imagine yourself as a person' (in Carpenter 2019, npn.). This is a powerful reminder of the way in which erasure can impact on students and their potential for flourishing as full human beings. In the next section, I turn to current contributions and research in these two areas.

Current contributions and research

Since the end of the last century, applied linguistics and second language education have been characterized by what is referred to as a *social turn* (Block 2003) – namely, a resetting of the field's intellectual and research agenda. This has entailed a number of things: an awareness that the global spread of English is far from natural, neutral, or necessarily always beneficial; a new understanding of the role of social context and local educational culture in classroom practice; the need for greater sociolinguistic awareness and sensitivity towards social factors in second language education; and the recognition that sociocultural theory has considerable explanatory power in terms of understanding the role of language as a symbolic tool in mediating teaching and learning and the socially, historically, and culturally determined nature of classroom practices. Ensuing turns inspired by this include the multilingual turn (Cenoz and Gorter 2015; May 2011), which is critical of the monolingual bias in second language education, and the political economy turn (O'Regan 2021), which looks at the imbrication of language in the ways in which social institutions, politics, and capitalism influence one another. More recently, specifically under the influence of the sociolinguistics of globalization and critical education studies, the field has begun to consider how second language education can be decolonized and made more inclusive.

Two volumes encapsulate the thrust of current theorising in this regard – Macedo's (2019a) *Decolonizing Foreign Language Education: The Misteaching of English and Other Colonial Languages* and Paiz's (2020) *Queering the English Language Classroom: A Practical Guide for Teachers*. Beginning with the former, this edited volume assumes that the yoke of colonialism weighs heavy on the teaching of modern European colonial languages and that the content of their curricula is focused on middle-class white people and their activities and realities to the exclusion of all else. In her contribution to the volume, Kramsch (2019: 51) makes the point that teachers can be unwittingly caught up in processes that are not immediately obvious to them, and argues that CLT, as the approach to second language pedagogy promoted by Anglo-American scholarship and commercial English language teaching, was from its inception 'already paving the way for the globalization of capital, goods, and people that characterize our present age'. A similar charge is also laid by Pennycook (2019: 175), who argues rather more forcefully that 'one of the great crimes of the global hegemony of communicative language teaching' is the way in which it served to 'promote a monolingual, native-speaker norm-based, and educationally shallow version of English'. All the contributors to the volume make the case for a broadly translanguaging approach to pedagogy as a necessary step in the decolonization of the curriculum and an overturning of the privileging of monolingual teaching practices (García and Li 2014). Such practices are held to reinforce the concept of linguistic hierarchies and dubious notions of linguistic (and other kinds of) purity. The various positions outlined in Macedo's book align closely with a manifesto issued in 2021 by a group of scholars committed to translanguaging in second language education (García et al. 2021). This group takes the view that named languages are in fact sociopolitical constructions and that the language using of bi- and multilingual speakers is a contextually qualified activity in which the deployment of so-called named languages is characterized by

porosity and blurriness. García et al. (2021: 15) do not deny that language learners may indeed be called upon to use specific named languages on occasion – rather, their focus is on asserting the value of translanguaging pedagogy as making sense from cognitive, educational, and social justice perspectives. By not requiring bilingual students 'to hold their named languages as separate cognitive linguistic entities', such students, they argue, are enabled to 'leverage their entire semiotic repertoire and to select from it the features and modes that are most appropriate to building their worlds and understandings' (p. 13).

Paiz's (2020) book, which builds on a significant body of work in the field, is an equally trenchant argument for change and advocates a 'queering' of second language pedagogy and materials. Such a project necessarily draws on queer theory, which refers to the range of theoretical stances which seek to trouble normative ways of thinking regarding gender identity and sexual orientation. Initially focused on troubling heteronormativity (i.e. the promotion and maintenance of heterosexuality as the default setting for all human sexual orientation), queer theorizing has evolved to incorporate a focus on the ways in which both heteronormativity and homonormativity (i.e. the promotion of sexual diversity from an apolitical assimilationist stance in which individualism, domesticity, and consumerism are foregrounded) intersect with other types of oppression (e.g. racism, discrimination against migrants, sexism) and how this can be interrogated and critiqued. Such thinking is in line with the assessment of the 2016 UNESCO report on violence related to sexual orientation and gender identity/expression in global educational settings. The report, which concluded with a plea for reform, showed that despite progressive legislation in some countries, when it came to curriculum and learning materials, 'the education sector appears hesitant to include representations of diverse sexual orientations or gender identities/expressions in the curriculum' and that '[t]he overwhelming majority of existing materials still consist of heteronormative representations, and representations of traditional masculine and feminine roles' (UNESCO 2016: 87). But queering, as understood by Paiz, is clearly a more broadly understood troubling of the curriculum and the many different kinds of marginalization it can produce. It entails, he writes,

> [T]he use of pedagogical strategies and curricular materials that trouble all identities, not just sexual ones, and how they are performed though language during communicative events. . . . Queering our practice is done to help students to talk about the inequalities and marginalizations that they or those close to them may face by being minority, female, lower-language proficiency, or LGBTQ+.
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> *(Paiz 2020: 2–3)*

In the next section, I turn to recommendations for practice emerging out of these recent (as well as longer established) contributions to research in this area.

Recommendations for practice

While curriculum change with regard to decolonization and inclusivity will ultimately be a matter for government in many settings, applied linguistics can continue to exercise what influence the field has on policy advisers, materials publishers and writers, teacher educators and teachers themselves with a view creating a climate for change. Most scholars take the view that materials have a key role to play in addressing these issues and have identified three main approaches. In the first of these, Macedo recommends confronting colonial erasure directly and he gives the example of the way in which language learners are frequently encouraged to develop a tourist gaze as opposed to a critical perspective regarding the monuments and

sites of historical importance associated with the language being taught. Using the example of a Spanish textbook's treatment of a character's visit to Spain which is accompanied by a photograph of the Roman aqueduct in Segovia, Macedo reproduces a set of gap-fill sentences to practise third person verb forms – *pone* (put), *sale* (leave), *trae* (bring), and *hace* (make). The appropriate verb has to be selected by the learner and inserted into sentences, such as the following:

1 Eduardo _____ un viaje a España (Eduardo _____ a trip to Spain).
2 Él _____ su ropa en la maleta (He _____ his clothes in the suitcase).

(Macedo 2019b: 18)

Macedo argues that the same verbs could have been practised using a completely different set of sentences which focused on the darker side of the Roman Empire. Such an approach, it is suggested, would deflect and undermine the tourist gaze by encouraging a more educational perspective congruent with a decolonizing stance. He provides a new set of sentences drawing attention to the use of enslaved people to build monuments such as the aqueduct in question. Examples include the following:

1 El jefe romano _____ cadenas en los pies del esclavo (The Roman chief _____ chains on the slave's feet).
2 Él no _____ equipaje porque los esclavos no tienen nada y son propriedad de los romanos (He does not _____ baggage because slaves have nothing. They are the property of the Romans).

(Macedo 2019b: 20)

Such an approach, he argues, could also be used to draw learners' attention to the depredations of Aztec and Inca civilizations by the Spanish Empire. However, in the ongoing absence of published materials of this kind, it falls to teacher education to make the case for alternatives to what is on offer and to individual teachers to create such content themselves. This is not without problems – as not all teachers gain experience of materials development on their initial training course, nor, in cases where they do, are they necessarily always paid to develop new materials when they enter employment.

Another approach recommended by Gray (2021) is the judicious use of literary texts to address the erasures currently disfiguring second language education. Focusing on LGBTQ erasure (but equally applicable to other kinds of systemic absence), he argues that such invisibility constitutes a 'double injustice'. On the one hand, there is the injustice against LGBTQ students who are denied recognition in the curriculum. On the other, there is the injustice against students who are not LGBTQ who are deprived of the opportunity to learn more about the complexity of the world in which they live and of the possibility of seeing this world through different eyes. Although literature was largely banished from the second language classroom under the aegis of CLT, Gray argues that using literary texts does not imply highly specialist knowledge or a radical departure from the way in which reading is normally approached in the language classroom.

Finally, there remains the long-established option of critical reading whereby students are asked to engage directly with texts which are problematic on account of their erasure or their framing of certain topics and categories of people. Paiz (2020: 98) recommends such an approach for exploring heteronormative texts in textbooks by inviting students to consider questions such as the following:

What relationships do we see represented in the text?
What do we notice about the structure of these relationships as it is related to gender, age, race, and so on?
What does this suggest to us about what the text values?
How are these views supported by the graphic elements of the text?
Do the pictures that go with the text reinforce these ideas or others?
Who is ignored by this view? Who is given preference?
What would alternatives look like?

In addition to these suggestions, a number of recommendations have been made with regard to the representation of language for pedagogical purposes and with regard to language pedagogy. All these can be considered under the heading of *superdiverse translingualism* (O'Regan 2021), an umbrella term which seeks to capture the complex, diverse, and hybrid ways in which language and language using have come to be theorized from the late 20th century onwards. Such an approach eschews monolingual teaching, valorizes and draws on students' home languages, favours translation as a classroom activity, and views translanguaging as making cognitive, creative, educational, and ethical sense. Some scholars, particularly those working in the world Englishes and English as a lingua franca (ELF) paradigms, have recommended student exposure to a wide variety of different Englishes, produced by both L1 and L2 speakers (e.g. Sung 2016), as well as a greater acceptance of phonological and syntactic variation in the classroom. Others such as Pennycook (2019: 176), writing again about English, recommend a polycentric and a provincializing approach which rejects the pursuit of 'a model of English that assumes we can accommodate the diversity of English within a single framework' in favour of an approach which is focused on the ways in which 'people manage to communicate in contexts of diversity'. This is conceived of as a form of critical pedagogy which sees the English language classroom (and indeed any foreign language classroom) as a privileged site for the destabilizing of normative meanings more generally. At the same time, those working in the translanguaging paradigm take the view that bi- and multilingual learners should be encouraged to draw on the full range of their linguistic repertoires and other semiotic resources in their meaning-making practices.

In view of the thrust of such critical scholarship, how then, we might ask, are the second language curriculum and materials likely to develop with regard to decolonization and inclusivity? In the following section, I turn my attention to this question.

Future directions

Beginning with the possible impact of superdiverse translingualism, some scholars who are sympathetic to its aims have raised a number of caveats which may impact on uptake by ministries of education and educational institutions. Jaspers (2018) argues that those working in this area may have unrealistically high expectations of teachers as agents of social change and fail to recognise the constraints under which they are obliged to teach. In addition, drawing on research on educational reform, he quotes one leading sociologist as saying: '[e]ducation can be significantly reformed and educational inequalities even significantly reduced, without this having any appreciable impact upon social opportunities and inequalities' (Moore 2007: 170). Jaspers' point is that the inequalities of the world cannot be addressed by education alone and that to over-emphasize its capacity for social transformation places too great a burden on it and on teachers. O'Regan (2021) is equally sympathetic to the superdiverse translingual project, but O'Regan argues that such work views language largely as *speech* and such work

ignores the fact that the hegemony of normative standard English (precisely what is valorized by capital) rests for the most part on *writing* – 'in global English the speech of capital is that of the normative written form' (p. 205), he argues. This point is difficult to refute. However, as García et al. (2021) explain, this assessment in no way weakens the case for translanguaging or superdiverse translingualism more generally. Classroom practices of the kind they advocate will not, they point out, lead directly to social transformation *on their own*, but they may help create a much-needed climate of change in which teachers and students can begin to rupture the yoke of colonialism in foreign language education.

In this endeavour, teacher-generated materials can play a significant role. Although mainstream publishers are unlikely to respond to demands for changes, there is evidence that materials can be produced in other ways which can address issues of decolonization and inclusivity – and in this, teacher education has an important role to play in alerting trainee teachers to the value of materials development, inculcating a decolonial sensitivity, and an awareness of the need for change in this area. One inspirational example is *Engaging with LGBT and migrant inequalities: activities for the ESOL classroom* (Stella et al. 2018). This is a set of materials for teaching English to migrants created by a group in Scotland. The materials, which are available online, emerged from a research project on LGBT migration and are based on ethnographic interviews with actual migrants. The way in which the materials were created represents a unique coming together of sociology researchers and ESOL teachers. The informants' stories were edited and turned into various activities for teaching and learning English. One particularly interesting feature of the material is the recognition of intersectionality in the lives of those depicted. There is no avoidance of racism, homophobia, and transphobia, and students are invited to think critically about their experiences of learning and using English.

Co-designed materials drawing on the expertise of applied linguists and classroom teachers could be one way forward. Such materials could adopt a decolonizing stance, be inclusive of erased groups and be multilingual, as well as containing translation activities and activities which actively draw on students' own linguistic repertoires. On their own, they will not transform the world or ensure that social wrongs are righted, but they may have the potential to contribute to troubling the status quo as it currently exists in second language teaching and to stimulate the development of students' critical consciousness. Such an undertaking, regardless of the difficulty, would be a quintessentially applied linguistics endeavour.

Related topics

language teaching and methodology; English for academic purposes; content and language integrated learning and English medium instruction

Further reading

Apple, M. (2019) *Ideology and Curriculum*, 4th ed., Abingdon: Routledge. (Drawing on the work of Antonio Gramsci and Raymond Williams, this foundational text of critical pedagogy analyses the ways in which the curriculum is embedded within the cultural, economic, and political context in which it is produced.)

Macedo, D. (ed.) (2019) *Decolonizing Foreign Language Teaching: The Misteaching of English and Other Colonial Languages*, Abingdon: Routledge. (This is an edited volume consisting of chapters by leading scholars in the field of critical applied linguistics and second language education. Collectively, they challenge the ways in which white, Western colonial thought and practice pervade foreign language teaching and explore the ways in which contestation might take place.)

Paiz, J. M. (2020) *Queering the English Language Classroom: A Practical Guide for Teachers*, Bristol: Equinox. (This innovative monograph is a practical guide for teachers who want to create queer inclusive spaces that not only challenge heteronormativity but also explore the way all identities are imbricated in structures of power and value systems.)

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7

Content and language integrated learning and English medium instruction

Heath Rose and Jim McKinley

Introduction

Recently, models of education have shifted from teaching a foreign language to teaching *through* a foreign language. This has culminated in the emergence of several educational models that have merged language learning goals with subject learning outcomes, such as content and language integrated learning (CLIL) and content-based instruction (CBI). As English has become a dominant global lingua franca, first as part of colonization and later as a growing educational trend, content is increasingly being taught via English as a foreign language (L2), which has given rise to the educational phenomenon of English medium instruction (EMI).

The multiplicity of terms used to describe content and language integrated approaches to education can be a source of confusion (Cenoz et al. 2014), especially as there is ongoing debate regarding distinctions between definitions (Thompson and McKinley 2018). Most of the approaches can be considered as an 'additive bilingual program' (Dalton-Puffer et al. 2014: 214), where there is an assumption that the model of education will help students to develop their second or additional language (i.e. the language that is being used as the medium of instruction).

CLIL is defined as the integrated learning of content and language that may involve teaching collaboration between content and language specialists, often in the form of a combination of content (conducted in the L2) and language classes, but possibly also in the same class. Models of CLIL vary greatly depending on the roles of language teachers and content teachers, and the organization of the curriculum. In some CLIL contexts, teachers are expected to take on a dual content and language teaching role; in other forms of CLIL integration is achieved via complementary language support classes, team-teaching, and collaboration between the two types of teachers.

CBI seeks to generate language-learning opportunities for students via the teaching of school subject matter through a target second or foreign language by essentially providing an authentic learning context for students to use the language (Rose 2021). It is a term that largely derived and developed in North American contexts, and some scholars from this region use CBI as an umbrella term to capture approaches that integrate content in language learning. In the Canadian context, the term CBI is used in the same way as CLIL in the European context

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to describe a model of general education via a second language. Outside of the North American context, CBI is often conflated with content-based language teaching (CBLT), which is an approach to *language* education, rather than general education through a L2. That is, the goal of CBLT is solely on language development, and content is used as a vehicle for that development. CBI, according to the North American definition, sees content learning as equally important as language development, thus closely aligning it with CLIL's dual function. It is this positioning of CBI that is adopted in this chapter, and to avoid confusion, we use the term CLIL as a catch-all term to refer to CBI practices in North America.

EMI is defined as 'the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English' (Macaro 2018: 19). This definition of EMI makes no claims for the learning of English as a goal of education; however, most educational systems that adopt EMI believe language learning will be a subsidiary result. Some alternative definitions of EMI align the term more closely to CLIL, such as Taguchi (2014: 89), who claims English medium education is used 'for basic and advanced [content] courses to improve students' academic English proficiency'. Most EMI definitions, however, do not make explicit reference to developing language proficiency, even though it is often implied in EMI policies and practices.

Because of the definitional ambiguity and overlaps with the associated approaches, circular arguments emerge concerning the sharing of key features among EMI, immersion, CBI, and CLIL, eroding the boundaries between them. Some of these blurred demarcations may be the result of educators taking ideas from academia to refer to practices in their local contexts (Dalton-Puffer et al. 2014), and as approaches are adopted in different countries and recontextualized to address different learning needs, the lines may be blurred even further. For example, the European concept of CLIL, was 'purposefully coined' by educators and researchers in Europe in an effort to sway language ideology and policy (Dalton-Puffer et al. 2014: 214). In this way, we see CLIL positioned as a European model for additive bilingual education (Cenoz et al. 2014) in much the same way that CBI and EMI have been used to sway policies in other contexts. As Murphy et al. (2020: 158) observed in their review of content and language integrated research,

> This differential terminology may lead to a problem in assembling an overall picture as it stems from the geographical perspectives in which the authors were themselves working in: CBI tending to be used in North America . . . CLIL in Europe; and EMI in Asia.

Historical perspectives

It is important to note that while the terms CBI, CLIL, and EMI are relatively new, the idea of teaching academic subjects through a foreign language has a long history in education. Some of the earliest examples of the phenomenon can be found from eighth century BC in ancient Rome. During this time, educational activities such as lectures, reading, and poetry were conducted bilingually in written and spoken Greek and Latin. In Japan, from the sixth to ninth centuries, Chinese was used to teach Buddhism and literacy in higher learning institutions. Throughout the Middle Ages in Western Europe, much theological and scientific knowledge was taught in Latin, despite it not being a widely used language in wider European communities. While these are historic examples of content and language integrated approaches, they differ in the aims of CLIL, EMI, and CBI today. These educational approaches were a result of the medium of instruction being dictated by the language that knowledge was written in rather than a curricular decision to choose the foreign language over other available mediums of instruction.

History and growth of EMI

The establishment of education systems within British colonies are perhaps the earliest examples of modern-day EMI practices. Like many of the top-down EMI policies around the world today, colonial educational systems were the result of political decisions to teach content in a foreign language. Understanding the historical and political dimensions of early forms of EMI is crucial to evaluating the dimensions and parameters of policy and practice (Coleman et al. 2018). As Evans (2017: 68) observes,

> The flourishing of scholarly interest in EMI inadvertently conveys the impression that the use of English as a teaching medium in non-Anglophone contexts is a comparatively recent phenomenon and thus tends to overlook, or at least downplay, the long (and admittedly under-researched) history of English-medium teaching in schools and universities in post-colonial Africa and Asia.

Indeed, early examples of the term 'medium of instruction' can be found in educational policy documents from India and Hong Kong at the turn of the 20th century and are used to mark policy decisions to use English as an alternative medium of instruction to locally available languages. The policies emphasise the belief at the time that teaching through English would lead to better professional employment opportunities – a sentiment that still drives EMI today in many educational systems.

History and growth of CLIL and CBI

CLIL and CBI are modern-day manifestations of educational approaches that have historically placed an integrated perspective of language development via school subject learning by harnessing the perceived advantages of language immersion at a young age. Educational models that embodied the integration of content and language learning can be tracked back to immersion programs that were popularized in Canada in the 1960s. These approaches to L2 education aimed to develop the French language competency of the majority-language Anglophone Canadian community by increasing the use of French as a medium of instruction in the primary school curriculum. These methods of immersion education established a practical approach to develop additive bilinguals of French to consolidate it as a co-official language (Genesee 1994). These early attempts at developing language competency through using it as an educational medium of instruction provided a strong foundation for concentrating language learning goals within a broader focus on scholastic content instruction.

While immersion education planted the seeds for the integration of content and language learning, CLIL and CBI later became formalized models of using an L2 to teach *some* academic content in a curriculum. While immersion was viewed as a total education experience, usually introduced in early education, CLIL and CBI were seen as models of education that could be introduced after learners had moved through numerous years of formalized education of the L2 as an academic subject. In short, CLIL and CBI were more structured forms of content and language integration that were predicated on a foundational knowledge in the L2.

CLIL became especially popularized in Europe due to top-down policy initiatives of governments, as well as grassroots lobbying by parents who sought to see more English used within the general curriculum. For example, the European Commission (2003, cited in Ruiz de

Zarobe 2013) actively endorsed CLIL as one of the 'innovative methods to improve the quality of language learning and teaching' (Ruiz de Zarobe 2013: 231), arguing it to be a highly effective form of education from primary through to higher education. As a result of such top-down endorsements, CLIL has boomed as an educational model in much of wider Europe, especially in the secondary school sector. In terms of modern foreign language education, CLIL and CBI also expanded in places such as North America and Australia as an alternative form to bilingual or immersion education, as it is viewed as a more supportive educational model to develop both language educational and academic subject knowledge.

Current growth

The growing interconnectedness of content and language is an important global phenomenon in language education. Several reports have described exponential growth in EMI and CLIL in recent decades and highlighted growth hotspots in Europe and the Asia-Pacific region. Much of the current emphasis on CLIL and EMI is connected to the internationalization of education, which is being realized via 'Englishization' of the curriculum. Within the higher education sector, Englishization of the curriculum is seen as one way to attract both domestic and international students and to raise the international reputation of universities. The emphasis on CLIL and EMI has repositioned foreign languages in educational systems, moving it from a subject in itself to an instructional language used for teaching other academic subjects (e.g. studying physics through English).

Critical issues and topics

In this section, we provide brief overviews of the critical issues and topics related to CLIL, CBI, and EMI. These are varying interpretations of what CLIL and EMI are, the effects on content learning, language learning development, access and inequity, and language use.

Critical issues over varying interpretations

In the literature, CLIL has been the subject of praise (e.g. Lorenzo et al. 2009) and criticism (e.g. Bruton 2013). In their recent critical examination of CLIL, Darvin et al. (2020) highlighted key theoretical, empirical, and pedagogical issues, acknowledging persistent (re)interpretation and discursive (re)construction of CLIL by both teachers and policy-makers. They call for a more 'critical frame that recognizes how CLIL is continually interpreted and discursively constructed by policymakers and practitioners and remains a perpetual site of struggle' (p. 104). In critical discussions, CLIL and EMI are inextricably linked as scholars struggle to differentiate the two concepts (see e.g. Walkinshaw et al. 2017). In the broad field of applied linguistics, CLIL is distinctly housed in the area of language education. For EMI, while content-based areas of language education research are all relevant and language aims and outcomes of primary concern to applied linguists, we find EMI research and practice often concerned with policy, curriculum, and content and language learning outcomes, particularly by educationists (especially in higher education studies) and critical applied linguists (with an eye on the injustices and inequities of post-colonial EMI). The varying ways that the CLIL and EMI are interpreted in educational systems around the world have raised critical concerns over the validly of transferring knowledge of practices from one context to another.

Effects on content learning

While there has been less attention on the effects of content learning in CLIL and EMI as opposed to language learning development (discussed next), a critical issue in both fields is whether learning through an L2 has a beneficial or deleterious effect on content learning. Scholars also raise psychological factors such as motivation as significant contributors to the effects of CLIL on learning outcomes (Doiz et al. 2014). Such concerns are equally relevant for EMI research concerned with effects on learning.

The popular consensus is that CLIL and EMI might have a detrimental effect on content due to the linguistic challenges of learning content through English. A growing body of research has shown that these challenges have an adverse effect on students' content acquisition and mastery (e.g. Airey and Linder 2006; Cho 2012; del Mar Sánchez-Pérez 2021). Systematic reviews of relevant research on CLIL show the effects on content learning to be inconclusive, with research designs that do not adequately control for individual factors, such as student aptitude or motivation, or contextual factors, such as socioeconomic status. Macaro et al. (2018) also found in their systematic review of EMI research that little research has been carried out to investigate the effectiveness of EMI and its impact on students' content learning outcomes in higher education. The lack of research on content learning in EMI has been linked to the preponderance of applied linguists leading such research (with a tendency to focus on its language aspects) rather than investigating effects of content knowledge acquisition (Macaro 2021).

Language learning development

The development of students' language learning as part of CLIL and CBI is central to its aims. For EMI, the expectation in many contexts is that language acquisition will occur incidentally (Hong and Basturkmen 2020; Wilkinson 2011) simply through exposure to English, despite little supporting evidence that this is the case (Schmidt-Unterberger 2018). Thus, a critical issue that has garnered much research attention is the extent to which CBI, CLIL, and EMI contribute to students' language learning development. Researchers are particularly interested in answering the question of whether these approaches lead to better language learning outcomes than traditional foreign language education in schools. Researchers are also interested in understanding what aspects of language benefit the most. There has been a particular interest in vocabulary development due the academic and technical nature of content covered in these models of education. One of the issues surrounding this topic is a lack of suitable discipline specific tests to measure language development in CBI, CLIL, and EMI, as general proficiency tests are deemed inadequate to measure gains in discipline-specific language (Macaro 2018).

Access and inequity

Another critical concern in CLIL, CBI, and EMI is that of access and inequity, especially when the medium of instruction is tied to a prestige language that is seen to afford students with social or economic advantages. In post-colonial nations such as India, Nepal, and Bangladesh, there are observed social inequalities and injustices surrounding educational opportunities, especially when the language acts as a barrier to educational access for large portions of the population (Hamid et al. 2013; Sah 2022). In countries like China, it has been argued that access to EMI is largely restricted to the elite wealthy families who invest heavily in their children's language education, and thus, EMI may result in 'perpetuating and accentuating inequalities in Chinese society' (Hu et al. 2014: 21). In terms of CBI and CLIL, it has also

been observed that the models of education are usually more dominate in affluent communities, where parental support for such programs are stronger.

Upadhaya and Sah (2019: 111) have also observed a gender disparity in EMI in Nepalese schools arguing 'access to English is a strong indicator of socio-economic success for girls' in many developing countries. They note disparities in male and female students' access to English-medium education due to both societal factors and educational policies. In other contexts, EMI and CLIL are seen to potentially encourage more female participation in traditionally male-oriented STEM subjects. Macaro and Akincioglu (2018: 259) state, 'in certain cultural contexts where females face societal obstacles, they might envisage the combined nature of content and language learning to be advantageous to their career aspirations'.

Language use (L1 use, translanguaging, code-switching)

Another critical issue in CLIL, CBI, and EMI is the role of languages other than the target language in the classroom. It has long been acknowledged in language education research that L1 use can have a facilitative effect on L2 learning. This effect has also been observed in content learning in an L2, such as Ferguson's (2009: 231) observation that the L1 serves 'as a communicative and pedagogic resource in bilingual contexts, especially where pupils struggle to understand difficult subject matter whilst simultaneously learning a foreign language, one that is nominally the official medium of instruction'. Numerous researchers have explored L1 use from the perspective of code-switching (e.g. Lo and Macaro 2012) to analyse the purpose of switches between languages, finding the L1 to be useful for building rapport with students and reviewing important content. Recently, scholarly interest has shifted to translanguaging, which moves away from language separation to the use of all of students' linguistic repertoires to support learning. Translanguaging, for example, might involve teachers drawing on multilingual resources on slides and handouts while simultaneously maintaining target language use in their teacher talk. In short, translanguaging normalizes the multilingual practice of learning subject matter multilingually by harnessing, rather than ignoring, students' knowledge of languages other than the medium of instruction.

Current contributions and research

One of the central focal points of CLIL research is to investigate evidence of its dual aims to enhance language development and content learning for students. Similarly, the focus of EMI research has been to investigate whether learning outcomes achieved by students are at least as good as being taught in a students' L1 (Macaro 2018). In other words, a central implication of CLIL and EMI research is to ensure EMI is not having a deleterious effect on students' education. Rather than exploring individual papers on this topic, this section outlines some key research syntheses that have explored the relationship between CLIL and EMI on both content knowledge and language acquisition.

A systematic review conducted by Fitzpatrick et al. (2018) explored the language learning outcomes of CLIL in comparison to traditional-language-only classrooms. The review focused on skills areas and concluded that the evidence indicated CLIL learners acquired more vocabulary than EFL learners. In terms of grammar acquisition, reading comprehension, listening, and speaking, the evidence was mixed, although there was a weak indication of a small advantage for CLIL learners.

A meta-analysis by Lo and Lo (2014) explored the effects of EMI on both language learning and content learning outcomes in a Hong Kong setting, restricting their analysis to studies

that included a Chinese medium of instruction (CMI) comparison group. Due to the longer legacy of EMI in Hong Kong, their analytic sample of 24 final studies explored evidence from 1970 onwards. They also included review questions that investigated the impact of medium of instruction on students' L1 (Chinese language) development. On the one hand, the meta-analysis found that EMI students fell behind their CMI peers in terms of academic achievement in maths, science, history, and geography. They also found evidence of a small effect of medium of instruction on students' L1 development. On the other hand, the studies indicated a good amount of evidence that EMI students surpassed the CMI students in terms of their English language develop.

Beyond the Hong Kong context, a report by Graham et al. (2018) synthesized the findings of 25 studies (22 CLIL and 3 EMI), of which 19 investigated language learning outcomes and six examined content learning outcomes. They concluded that research evidence was mixed, with some studies showing an advantage of CLIL over traditional methods of instruction and other studies showing no such advantage. They found more conclusive evidence that CLIL approaches might disadvantage low-achieving students in terms of their content learning.

A rapid evidence assessment conducted by Murphy et al. (2020) aimed to update the findings from a number of previous reviews (Fitzpatrick et al. 2018; Goris et al. 2019; Graham et al. 2018; Harris and Duibhir 2011; Lo and Lo 2014) on the effects of medium of instruction on language learning and content learning outcomes. Their review not only synthesized the findings of previous research syntheses but included evidence from new studies that were evaluated as offering robust evidence according to pre-set evaluation criteria. The review concluded that CLIL and EMI did not appear to impair content learning for high academic performers, especially those who self-select into such programs, but highlighted some deleterious effects on learning for low academic performers. They also found consistent evidence of a positive effect on language learning outcomes for CLIL and EMI students, especially for vocabulary acquisition and receptive L2 skills. They also concluded that these positive effects are only likely to occur when students take a substantial proportion of the curriculum in their L2 (Merino and Lasagabaster 2018).

While these reviews specifically explored evidence of the impact of medium of instruction on educational outcomes, other reviews have explored evidence via a wider lens. One of the most well-cited reviews of EMI research is a synthesis of 83 EMI studies within a higher education context (Macaro et al. 2018). This review is more expansive in scope than the mentioned reviews because its review questions included of research on stakeholder beliefs and attitudes towards EMI, in addition to reviewing evidence on educational impact. The review concludes that EMI is rapidly growing in numerous contexts around the world, fuelled by top-down educational policies. They report a pervasive belief that EMI offers several benefits including attracting international students, compensating for a lack of resources in the L1, improving language learning, and leading to greater opportunities to study abroad. They warn, however, that the research evidence to support such beliefs is lacking.

Main research methods

Research reviews of CLIL, CBI, and EMI have pointed to several methodological concerns regarding widely used research designs and measures in EMI studies.

First, much research on the impact of CLIL on educational outcomes has failed to address the issue of self-selection bias. As Graham et al. (2018) noted in their review, many CBI programmes that form the context of research typically include students (and their parents) who elected to enrol on these programs rather than traditional programs. The self-selection of

students in CBI programs increases the likelihood that they may be more motivated and have higher levels of benchmark English language proficiency. A similar conclusion was drawn in a review of CLIL research (Goris et al. 2019). This criticism sees a need for more rigorous random control trials of CLIL and CBI in schools, especially if the claims about the efficacy of the educational model are purported by national governments.

Second, in many studies of CLIL and CBI that have investigated language learning outcomes, students may receive extra instruction time, compared to their EFL or MFL counterparts (Goris et al. 2019; Graham et al. 2018). This is because it is typical for CLIL and CBI educational curricula to have students undertake academic subjects in their foreign language whilst also attending subjects where the medium of instruction is also taught as an academic subject. This makes comparative research problematic as is becomes difficult to attribute positive results of language development in CLI and CBI contexts solely to the language being used as a medium of instruction, noted by one review, 'it is difficult to draw any strong conclusions in terms of the direct effect of CLIL as in most studies the amount of exposure to language was greater than for the control non-CLIL groups' (Fitzpatrick et al. 2018: 60). Research methods must therefore account for this contextual difference if stronger conclusions are to be drawn on the efficacy of CBI and CLIL.

Third, measures of language development in CBI, CLIL, and EMI studies are problematic, as general proficiency measures might not accurately capture the types of language being acquired in discipline specific subject areas. General proficiency measures are often used in studies, which measure general communicative competence in a language rather than discipline specific knowledge. Vocabulary studies often use general or academic word lists which might not fully capture specific lexical knowledge acquired in EMI (Aizawa and Rose 2019). This suggestion also extends to measures of content learning, as previous research has suggested that specifically designed tests that assess students' learning on the topics taught during the research period are better positioned to capture content learning (Lo and Lo 2014). It is thus important for researchers to consider bespoke measures of the types of language development they hope to measure in their research.

Fourth, there is a current imbalance in the contexts of EMI research, with Europe and East Asia being particularly over-represented and Sub-Saharan Africa, Latin America, and South Asia being under-represented. Similarly, a lot of CLIL research has been conducted in Europe, especially in Spain (Graham et al. 2018), so the results of these contexts may not be easily transferable to other contexts which have drastically different sociolinguistic circumstances. This also relates to a further issue in EMI research of a large focus on descriptive studies of EMI practices and stakeholder attitudes – often within a single institution. This has led some researchers to call for more comparative methods which explore EMI issues across institutions and regions.

Fifth, there is a need for research methods to consider other social and political factors that are intertwined with CBI, CLIL, and EMI. Beyond those already mentioned surrounding self-selection, there may be fundamental differences in students and schools that undertake learning via a foreign language. Schools that offer CLIL may be in areas of higher socioeconomic status. In some areas there may be a gender, racial, or ethnic bias in terms of access and experience in EMI and CLIL. Some EMI research has indicated that girls are often excluded from partaking in English medium forms of education due to the higher tuition costs (see Upadhaya and Sah 2019). Deeply qualitative, ethnographic, and narrative research methodologies might elucidate the effects of educational mediums of instruction on specific disadvantaged populations (see, for example, Sandhu 2018).

Recommendations for practice

Several recommendations for practice have been made based on CBI, CLIL, and EMI research. Some of these recommendations target content teachers, some English language teachers, and other policy-makers.

Recommendations for content teachers

One research-informed recommendation for content teachers is that they should harness the facilitative role of using students' L1 and their knowledge of other languages to enhance pedagogy. Content teachers may want to ruminate on the reported benefits of translanguaging pedagogies. Just as EMI need not mean English-only instruction, translanguaging pedagogy does not indicate a laisse-faire approach to language use in the classroom. Research has pointed to certain pedagogical functions, such as building rapport with students, or recapping essential information, where the L1 can have a facilitative effect on learning, while reserving other functions for the L2 to be used to engage deeply with the subject content (Sahan 2020).

Another recommendation for content teachers is for them to adjust their teaching in response to an awareness that students may not be learning in their most proficient language. These adjustments could involve minimising impromptu teacher talk, structuring lecture content around a pre-reading to increase the modes of content input available to students, pre-teaching essential technical vocabulary, and allowing opportunities for students to interact with ideas via tasks and activities to reproduce subject knowledge (Rose 2021).

Recommendations for English language teachers

A need for specialization of disciplinary knowledge in an L2 has accompanied the growth of EMI. To meet this need, many English language teachers have been required to expand their roles into the realms of English for academic purposes and English for specific purposes. Within these classes, English teachers are responsible for teaching students appropriate academic literacy skills to learn via the medium of English and to use English in professions associated with the academic subjects being studied.

In recent decades, there has been an increased awareness that the academic needs of students vary from discipline to discipline in terms of technical vocabulary and genres of reading, writing, and instruction. This has further given rise to the importance of English for specific academic purposes, which focuses on the specific disciplinary needs, tasks, and genres of students, and requires teachers to develop their 'own subject knowledge and competencies; teachers need to investigate the specific epistemology, language, and practices of the target discipline and its community of practice' (Flowerdew 2016: 10).

To help facilitate the movement of language teachers closer to the disciplines of CBI, CLIL, and EMI, research has highlighted an urgent need for greater collaboration between language and content specialists (Galloway and Ruegg 2020). Some approaches to facilitate this movement are to bring language teachers into content classes to offer linguistic support to students as the needs arise or to offer models of the curriculum that promote co-teaching. Previous research has showcased the benefits of team-teaching CLIL school environments (Pavón et al. 2015), but there has been less research highlighting the effectiveness of such integrated teaching in EMI in higher education settings (Lasagabaster et al. 2018).

Recommendations for policy-making and planning

A recommendation for policy and planning within CLIL and EMI institutions is to ensure that the right systems are in place to offer the necessary support to both students and teachers. Often top-down policy-makers are observed to rush into CLIL and EMI, without investing the resources into support structures to facilitate delivery and ensure quality of education is maintained. Many students require additional linguistic and academic preparation, both before and while undertaking subject specialist tasks. In EMI contexts, these support models have been described as a 'preparatory [year]' model, and 'concurrent' model (Macaro 2018), depending on the timing and nature of the support. If institutions do not have such integrated support systems in place, they may be setting up their students to fail in reaching their full content learning goals.

CLIL and EMI literature also highlights a need to educational planning to include teacher professional development programs to support the needs of teachers. Despite observed EMI pedagogical concerns, research has highlighted that professional development opportunities for in-service teachers are rare and that pre-service training or certification is even rarer (Macaro et al. 2020). A greater amount of research has been conducted on professional development in CLIL (e.g. Lo 2020), but more is clearly needed to ensure teachers are supported through the right type of training structures, which are promoted through policy and planning rather viewed as auxiliary activities.

Future directions

Current scholarship on CLIL and EMI in the field of applied linguistics has pointed to several areas of needed future research. Importantly, the field requires research to address the following critical questions:

- When accounting for socioeconomic factors and individual learner differences, does CLIL/CBI/EMI lead to similar levels of content learning as L1 medium of instruction?
- When accounting for socioeconomic factors and individual learner differences, does CLIL/CBI/EMI have a facilitative or deleterious effect on language learning compared to tradition foreign language classes? If so, what aspects of language learning are most enhanced or impeded?
- Is the growth of CLIL/CBI/EMI accompanied by a growth in issues associated with educational access and inequality? If so, what populations are advantaged and disadvantaged?
- Due to the differences in interpretations of CLIL/CBI/EMI in practice, is it possible to develop typologies of curricula and pedagogical practices to ensure greater transferability of findings from one context to another?
- How can the use of other languages in CLIL/CBI/EMI classes lead to better learning?
- What does good CLIL/CBI/EMI pedagogy entail? Does it, for example, involve greater classroom interaction, translanguaging, or co-teaching?
- Beyond content and language learning outcomes, what are the demonstrable benefits of CLIL/CBI/EMI for learners?

These are just a few critical research questions that warrant future investigation. Several systematic reviews offer comprehensive lists of research questions of their own (e.g. Macaro et al. 2018).

In terms of future directions of practice, it is essential that policy arbiters make research-informed decisions for the future development of CLIL, CBI, and EMI. This might entail

ensuring the right support systems are in place for students and teachers. As content-led forms of L2 education increasingly become popularized, it is necessary that this future growth is based on a firm understanding of how content and language are best integrated for the benefit of all. In the past, policy-makers may have been too hasty in pushing CLIL, CBI, and EMI as a form of 'best practice' in education under the erroneous assumption that the learning will occur naturally. As research has shown, the integration of content and learning is very complicated and connects to several critical issues that need to be carefully considered in each context where it is introduced. In future practices, it is essential that researchers, policy-makers, and other educational stakeholders work together to build an informed best practice of EMI, CBI, and CLIL, which will lead to better outcomes for all.

Related topics

bilingual and multilingual education; language teaching and methodology; English for academic purposes

Further reading

Dafouz, E., Moore, P., Nikula, T. and Smit, U. (2016) *Conceptualising Integration in CLIL and Multilingual Education* (Bilingual Education and Bilingualism). Bristol: Multilingual Matters. (This edited book focuses on issues surrounding the integration of content and language learning and explores CLIL from three intertwining perspectives of curriculum planning, stakeholder experiences, and classroom practices.)

Macaro, E., Curle, S., Pun, J., An, J. and Dearden, J. (2018) A systematic review of English medium instruction in higher education. *Language Teaching*, 51(1): 36–76. (This widely cited systematic review synthesizes research on the phenomenon of EMI in higher education, drawing global conclusions and setting a future agenda for EMI research.)

McKinley, J. and Galloway, N. (eds.) (2022) *EMI Practices in Higher Education: International Perspectives*, London: Bloomsbury. (This edited volume outlines EMI policies and practices around the world and includes chapters from key international scholars exploring local perspectives on a global phenomenon.)

Murphy, V., Arndt, H., Briggs Baffoe-Djan, J., Chalmers, H., Macaro, E., Rose, H., Vanderplank, R. and Woore, R. (2020) *Foreign Language Learning and Its Impact on Wider Academic Outcomes: A Rapid Evidence Assessment*. Educational Endowment Fund. (This commissioned rapid evidence assessment [REA] focuses on the research evidence on the effects of modern foreign languages instruction on wider academic outcomes, including a review of impact on content learning.)

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8

Bilingual and multilingual education

Ingrid Gogolin

Introduction

Bi- or multilingual education is a highly controversial matter. The debates on the subject are deeply rooted in historical and political traditions. The first section of this chapter gives a historical outline of these traditions, focusing on the fact that the controversy took on a special significance with the emergence of the 'classical' – that is, European nation-state (Hobsbawm 1990). The notion of nation as developed in the 18th and 19th centuries gave rise to the idea that a state – and with it all inhabitants – 'normally' is monolingual. Since then, the idea of monolingualism in a whole country or territories in a country has been one of the key characteristics of a 'nation' – and with this: the basic ideas of national institutions, such as the education system.

This perspective sets the frame for practice of and research on bilingual education. Respective models date back to the 19th century. At that time, they were usually destined for regions that had been conquered by force of war. Since then, the models have become part of the regular system in many regions – often only available for selected populations. In contrast, the idea of multilingual education emerged in the more recent past. Migration was usually the trigger here – that is, the constellation that pupils of many different languages of origin are educated together.

Both approaches have common theoretical and ideological foundations that shape the ideas of 'linguistic normality' in a nation-state. These foundations are presented in the historical chapter of this article.

For bilingual education, we find models from classroom practice in single lessons to fully developed types of schooling. This is not the case for multilingual education. Here, approaches are focused on teaching and learning in the regular education systems as the sites of linguistic diversity. A critical issue is the role and function of bilingual models, given that in most regions where they are established, they address a multilingual school population.

The next sections present a range of models of 'bilingual education', together with research on their effects and effectiveness. Research on multilingual education has so far focused on issues of teaching practice, such as questions of feasibility or acceptance of approaches. Research on the actual effects of multilingual approaches on the outcomes of teaching and learning is still scarce.

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Historical perspective: nation-state and monolingualism

There has long been an air of controversy surrounding the subject of bi- or multilingualism and bilingual education. On the one hand, the bi- or multilingual personality is subject to admiration and respect. On the other hand, bi- and multilingualism are regarded with critical distance or even mistrust. In historical French reference works, the term 'bilinguë' is synonymous with 'cleft tongue' or 'split personality'. In contrast, the term 'multilingualism' has less been subject to ideological recourse. In academic discourse, it is used in order to highlight the diversity of modes of expression not only linked by using different languages, but also within one language as effect of context related registers or variants (Bakhtin 1993).

The ambivalence of the notion of bilingualism took on a special significance with the emergence of the idea that a 'normal' nation is monolingual in the foundation era of the European – *classical* – concept of nation and the inseparability of the people's language and the state. Younger concepts in post-colonial nation-states differ considerably from this – namely, with respect to their linguistic constitutions. Here, the term 'multilingual' was primarily used with positive connotations, indicating the existence of a multitude of 'national languages' (Alexander 2003). The European example is fundamental for historical and current debates on bilingual education and influences the set of arguments which are used, especially with respect to power relations, which is often intrinsic in the debates.

According to the classical concept, monolingualism of a whole country or its territories is one of the key characteristics of a well-functioning, 'sound' nation-state. Information about the language(s) spoken where a person lives therefore signified not only a matter of language usage but also the allegiance to a ('my') country. The official language of the nation mutated to the 'mother tongue' of its constituents. The use of the 'correct' language – that is, the language of the nation – since then implied solidarity with 'one's own people'.

J. G. Fichte belonged to the philosophers who introduced the notion that the bonds between a nation and its language are inseparable 'by nature' (Fichte 1896: 259). This idea was gradually transferred into a consensus culture (Gramsci 1984): 'the bourgeoisie' and 'the working class' identify themselves with the monolingual nation as the 'natural case'. The recourse to a common bond, anchored in nature itself, between an individual, a state, and consequently its language developed into one of the reality-shaping myths since the 18th century (Hobsbawm 1990). In the 19th century, these ideologies became incorporated in the nations' societal institutions – such as education, public administration, and the judiciary – and assimilated in the individuals' self-identity. They became common sense as *monolingual habitus* (Gogolin 1994; 2006).

The persuasion and stability of this common sense is not least an effect of the conviction that there is a 'natural' connection between nation, people, and language. Complementary to this, authors substantiate the conviction that bilingualism is unnatural and harmful – not only for the community but also for the individual. This is illustrated by the example of an entry in a pedagogical reference book, dating from the early 20th century: *Encyclopdia of Pedagogy* ('Encyklopädisches Handbuch der Pädagogik'):

> To summarize, the disadvantages, which do not all need to occur in the same person, are greater expenditure of time and energy at the expense of other work, weakening of the innate sense of language due to mutual interference of the two languages, uncertainty how to express oneself, mixing of languages, lack of active vocabulary, loss of intellectual community with monolinguals, i.e. with the vast majority of countrymen.
>
> *(Blocher 1910: 669)*

In retrospect, the 'successful career' of monolingualism as the individual's self-conception and that of the classical nation-state is justified by the societal and technical developments of the time. The Enlightenment and the French Revolution had initiated the emergence of a civic public sphere. Access to a common language thus meant at the same time inclusion and participation. The industrial revolution, specifically the invention of print, made it possible to standardize languages and circulate the standardized versions among a large number of people. Systems of general education that addressed every child (or at least every male child) were founded and allowed access to 'the common language' in its standardized form. Initially, the creation of monolingualism was one of the necessary prerequisites for the development of democracies in today's sense.

The ambiguity of this development relates to the fact that the notion of nation developed into nationalistic concepts in the course of the 19th century. Participation in the civic public sphere was no longer considered a universal human right as initially conceptualized, but an exclusive right of the acknowledged member of a state, the citizen. The focus on functional aspects of language as tool for communication and participation was increasingly accompanied, if not replaced, by the connotation of language use as an expression of solidarity and loyalty with 'Emperor, People and Fatherland' – as it was expressed in late 19th-century Germany.

This development points to the interconnection between language and power. The creation of a 'common language' inevitably meant the exclusion of other languages in a nation-state from the privilege of commonness – or the creation of language minorities. Since the middle of the 19th century (in German-speaking areas, elsewhere at different times) the existence of language minorities within countries has repeatedly led to disputes about *individual* versus *community* versus *common* language.

All classical nation-states, at one point or the other in their histories, experienced aggressive assimilation of linguistic minorities, be it on their own state territories or in the course of conquest – and everywhere, more or less generous exceptions were made for certain languages, which were provided with exclusive privileges (Hogan-Brun and Wolff 2003). Since the 1990s, the European Charter for Regional and Minority Languages (Council of Europe 1992) provides protection for autochthonous minority languages that are considered as elements of the European cultural heritage. The claims for linguistic minority rights are in essence elementary struggles for participation and inclusion and for access to power in a society (Bourdieu 1991).

This sets the frame for the controversies which play out around bilingual education until the present day. Attempts at a scientific analysis of bilingual (or multilingual) education cannot ignore the historical tradition. This is especially true because similarities with earlier events and argumentation appear repeatedly in revivals of the controversy. If scientific dispute related to bi- or multilingualism is not to degenerate into mutual criticism of opposing ideologies, the history of the controversy must be well understood.

Critical issues and topics

Bilingual education has been transferred into a number of types which were the subject of numerous investigations. In contrast, research on multilingual education is as yet more concerned with conceptual implications for teaching and learning. A critical issue in the discourse on both perspectives is related to migration. In the last decades, the dynamics and complexity of migration resulted in increasing linguistic and cultural diversity in virtually all education systems around the world. The term 'super-diversity' highlights the amount of complexities that supersedes all previous patterns of migration-driven diversity (Meissner and Vertovec 2015: 542). One aspect of super-diversity is the increasing diversity of languages in national

populations – regardless of a nation's linguistic self-image. Consequently, the students in many bilingual education models are most likely multilingual. To date, however, the effects of bilingual approaches on multilingual learning constellations have hardly been studied.

Current contributions and research: types of bilingual education

In this chapter, the term 'bilingualism' is used specifically for types of education which explicitly label themselves as bilingual, independent of the number of languages involved as represented by the *addressees* of such education.

In line with the historical development, bilingual models have mostly been established as exceptions from 'regular' education – which is designed in a monolingual modus. Bilingual education schemes usually serve the needs or demands of certain groups in societies, not societies as a whole. This is different in education systems of younger, mostly post-colonial nations. In parts of India and some African states, such as South Africa, for example, we find trilingual schooling: children are taught in their home language first, plus the language of the region and a supra-regional language, such as English or French. Where they have been established, these models replace former post-colonial systems in which the children are taught in their home language in the beginning of their school careers, but after a foundation phase, the teaching completely shifts to usually English or French as language of instruction. This very specific constellation is conventionally not considered as 'bilingual education' (see Hornberger and Corson 1998; Agnihotri 2006; Heugh 1995).

Bilingual models in classical nation-states with several national languages (see Hobsbawm 1990), such as Canada, Belgium, and Switzerland, play a specific role. Here, children are normally taught (at least one of) the other national language(s) as subject at a certain period of schooling. More ambitious are so-called *immersion models*, such as the French models in Canada. Whereas English education in Canada offers French as a subject, usually from grade 4, in the French immersion models all teaching (except English language and Arts) to children in Anglophone districts is provided in French. The models are established differently in nine Canadian Provinces. Early immersion programs begin in kindergarten or grade 1, middle immersion programs start midway through elementary school, and still others begin in the later grades. Attendance in immersion varies by the type of program (Howard 2007). Although the number of French heritage speakers decreased in recent years, the participation in French immersion programs remains stable (Statistics Canada 2021).

Reviews show, that the French immersion models in general led to high performance of the participating students in reading and other subjects (Allen 2004; OECD 2006). However, it is not evident that bilingual education as such is causal for success. Analyses of the socioeconomic background and cultural capital (i.e. knowledge, skills, and education of a person, Bourdieu 1979) of children in French immersion models show that they are highly self-selective. Immersion students' families are from higher socioeconomic backgrounds and are more likely to have a high cultural capital than the average school population. A higher proportion of girls enrol in immersion programs, and as girls generally show better performance in language than boys (Sugiura et al. 2018), this distorts the results on 'average success'.

Although more research is needed on the factors influencing the performance of French immersion, the success story has inspired models in many regions worldwide. The numbers and types of models change quickly (see overviews on Wikipedia, headword 'bilingual education'). Examples are two way or dual immersion models which often aim at helping children from immigrant minorities to catch up with the majority language. In theory, these models are composed of 50% bilinguals and 50% of monolinguals. Both languages are taught from the

beginning. A variety of academic subjects is taught in each of the languages. Other models are transitional bilingual education. Here, teaching takes place in the home language of the children in the beginning. The second (majority) language is gradually introduced, at first as a subject only, after some time also in other content areas. The aim of such models is to support the acquisition of the second (or majority) language and to prepare transition into monolingual mainstream classes (Cummins 2003).

The Canadian model has been transferred to a number of different contextual conditions, and alterations have been made to the programs – and not surprisingly, the 'successor models' do not necessarily prove that they lead to academic success for their pupils. This is no surprise, as the transfer of education models to new contexts is rarely successful (Slavin 2008). Bilingual education models have to be highly adaptive to the particular conditions and requirements of the learners they address.

Irrespective of this, the Canadian models are emblematic of the fact that bilingual education is connected with specific power relations. On the one hand, it is established as a privilege for elites, such as children of diplomats or employees of supra-national agencies during their stay abroad (e.g. 'European schools' in cities with EU institutions) or the children of executive staff posted abroad (e.g. Japanese schools in European cities) – or, as it turns out in practice, in the Canadian French immersion models. These models are either designed or emerge in practice as accessible for more affluent (and urban) communities, and they are used as strategies of social distinction (Bourdieu 1986). In these models, effectiveness or appropriateness of bilingual education are hardly ever questioned: it is taken for granted that learners from affluent families profit from bilingual education. Very little research has been carried out about the effects of such models, the Canadian case being an exception.

On the other hand, bilingual education models have been established to serve the specific needs of less privileged groups. This can be autochthonous minorities which, mostly after a period of struggle, were granted an education system matching their own perceived needs. These might also be minorities which emerged as an effect of the change of borders after a war, an invasion, or a treaty. In recent times, however, the most frequent ground for the development of bilingual models is migration.

Respective education models have been established mostly in the service of larger migrant communities. Another relevant factor is the access of a community to the power structures in either the country of origin or the country of residence. Examples are schools which are sponsored and supervised by the countries of origin. Such models emerge on the basis of bilateral agreements between the country of origin and the country of residence, mutually allowing for the establishment of schools abroad. Typical examples of this are bilingual models in some German cities: 'regular' schools additionally offer bilingual programs in immigrant languages. The teachers for these programs are paid by and work under the supervision of their home countries. The administration of the models is carried out in cooperation between the German school inspectorate and the consulates of the respective country (Gogolin 2019).

A wide range of bilingual models for immigrant minorities, nevertheless, are established by the countries of residence. It is mainly this type of model which is subject to controversies – and consequently, the subject of research. Whereas, in the case of privileged groups, there is no doubt about the usefulness of bilingual education, in the case of less privileged groups, such doubts seem to be justified *per se*. Jim Cummins has brought this difference to attention; he introduced the notions of *additive* versus *subtractive* bilingualism and pointed to the power relation in its background: In a situation of well-being, bilingualism appears to be a means of enrichment, whereas in underprivileged situations the individual seems to run a risk by being bilingual (Cummins 2000).

It is a common characteristic of all bilingual education models to give learners access to reading and writing in both languages concerned, but the aims of this vary.

'Language maintenance programmes' strive for 'fluent bilingualism' and often provide the entire curriculum in both languages. This kind of model has been established in particular for autochthonous minorities in areas with quite stable bilingual speech communities, but some attempts have also been made with respect to immigrant minority communities. Literacy in these models can be taught in parallel or consecutively. Normally, the teachers involved are themselves bilingual in the languages concerned.

'Transitional models' of bilingual education mostly address immigrant minority students. They are based on the assumption that it is an advantage for children to develop their 'first language' – the home language – up to a certain level before being confronted with education in a further language. An influential theoretical consideration was the threshold hypothesis (Cummins 1979: 155), indicating in its initial ('strong') version that a minimum command of the 'first language' is necessary in order to learn a second language successfully.

This idea was already present in historical beliefs on language development. In the early 19th century, renowned pedagogues such as Moritz Diesterweg (Diesterweg 1836) presented the 'uncontested methodical rule' that teaching has to follow the 'nature' of learning: the unknown has to be based on the known, the abstract on the tangible. In language education this principle would demand that a second language should not be offered to the learner before the 'essence and forms' ('ihr Wesen und ihre Formen überhaupt'; Diesterweg 1836: 161) of the 'mother tongue' are indubitably acquired – as these build the indispensable prerequisite for learning in general and particularly for learning another language. If a new language were brought to a learner too early, 'obscurity and confusion' ('Unklarheit und Verwirrung') would be the inevitable effect. Language development was seen as a stepwise process, and on every step 'the mind of the learner can only be occupied with one [task]' (ibid.: 165).

The initial 'strong' version of the threshold hypothesis, however, has been revised by Cummins and others. The main and resilient argument today focuses on the interrelatedness of languages in the repertoire of a speaker. The current question is: whether and under which conditions can a positive transfer from one language to the other be expected (Cummins 2003, 2008). Respective studies show that positive transfer between languages can take either direction: from the language of schooling to the home language and the other way round, provided that the teaching methods explicitly support making use of transfer strategies (Marx 2019).

Whereas consensus on the interrelation of languages has been reached, the strong version of the threshold hypothesis is still 'common sense' for many supporters of transitional bilingual education, especially for children from migrant families. Here it is a common feature that the amount of teaching time of the two languages involved is reversed in the course of schooling. At the beginning, the majority of teaching time is dedicated to the home language, and only few hours are dedicated to the majority language. The balance of teaching hours changes gradually until most hours are taught in the majority language. The shift usually takes place after the foundation period of schooling (Polanco and Luft de Baker 2018).

A variation of these models with borrowing from French immersion has been established with respect to some immigrant languages: the 'two-way immersion'. Here, the addressees of bilingual education are bilingual (from autochthonous or immigrant minorities) and monolingual children; a composition of 50% from each group is recommended. In practice – at least in Europe – this composition is hardly ever achieved because these models are often situated in multilingual areas, with the effect that students may be bilingual, but represent other home languages than the partner language in the bilingual model. Furthermore, the prestige of the

languages involved plays a role. Schools offering 'less prestigious' languages face the effect that monolingual parents refuse to choose them for their children.

Another variety is bilingual education in the context of foreign language education. Here, the second or partner language is not any learner's home language but a foreign language for all students. These models are called content and language integrated learning (CLIL; see Rose and McKinley, this volume). Here, a common foreign language – very often English or French in Europe – is firstly introduced as a subject to the students. After a certain level of proficiency is reached, the language teaching is combined with the teaching of another subject, such as history or science. This approach is based on the assumption that language learning will be more successful if content other than language is simultaneously acquired with language skills. Systematic, methodologically rigid evaluations of the models' performance are still scarce (Lancaster 2018).

Transitional bilingual education has played a prominent role in political and scientific debates on the effects of bilingual education. The most prominent controversies have taken place in the USA. The fierce dispute around this issue resulted in the abolition of bilingual education in the states of Arizona and California (Ricento 2003). The political struggle also gave rise to critical examinations of research on the effects and effectiveness of bilingual education in general. The following section will present the most important arguments and results of this research.

Main research methods and debates: effects and effectiveness of bilingual education

The majority of studies on the effects and effectiveness of bilingual education have been carried out in Canada and the USA, including a number of meta-analyses (Söhn 2005). Two examples illustrate the research and the nature of dissent in the debates: a synthesis on the effects on reading instruction by Slavin and Cheung (2005) and a 'rebuttal' of former meta-analyses by Rossell and Kuder (2005). The examples show that proponents and opponents of bilingual education tend to focus on different aspects of research results. Both sides have in common that they allege the other of being biased, at best, and of arguing ideologically, at worst. This points to the fact that the 'bilingualism controversy' cannot be resolved by mere 'empirical' argument. The tradition in which it is embedded – as explained in this chapter – is intrinsic in the debates. In the end, a decision about the value or importance of bilingual (or multilingual) education is generally – explicitly or implicitly – related to a normative basis. If, in principle, the value of bilingual education is determined by the point of view that the proficiency in *both* languages counts, the evaluation and judgement of the 'success' or 'effectiveness' of bilingual education models will turn out differently from approaches in which only the results in *one* language – namely, the majority language – count as a yardstick.

The following examples illustrate this. Slavin and Cheung (2005), the first example, base their synthesis on research about effects on *reading skills* of (mainly Hispanic) bilingual students in the USA. They use the method of 'best evidence synthesis' (Slavin 1986). This is based on including consistent, unbiased information from experimental studies on English-only reading programs and bilingual programs. By this strategy, a re-analysis of quantitative data (by effect sizes) is combined with narrative information on the observed models. The authors encompass all studies written in English about effects on reading skills which met a minimum methodological standard.

Before discussing their general results, the authors give a detailed insight into the characteristics of every program in their analysis and thus provide a picture of the differences in

approaches of 'bilingual education' versus 'English only' models. This leads them to conclude that adequate research on effects of models would most probably have to be carried out with methodological repertoires different from those which had been applied. Irrespective of the limitations of their own approach, they conclude that within 12 (out of 17) studies in their review, effects favouring bilingual approaches can be found. Five studies showed no effect. None of the studies showed effects in favour of English immersion – that is to say, English monolingual approaches (Slavin and Cheung 2005: 31). The authors stress that the positive effects of bilingual education models do *not* relate to transitional models; the results were in favour of 'paired models' which introduce both languages in a correlated and continuous way. Yet the authors conclude that their analysis does not shed light on the question of whether the language of instruction is the causal factor of positive effects – or if it is a more general outcome of the quality of instruction. They plead for an end to ideologically driven rather than empirically driven debates on the issue (2005: 34).

The second example is a study carried out by Rossell and Kuder (2005). These authors take an opposing stance, suggesting that positive effects of bilingual education models cannot be found. In their approach, the authors discuss earlier meta-analyses in the light of their 'background political bias' which led to the exclusion of studies 'on other grounds' than methodological evidence (2005: 45). They then clarify their view that 'bilingual' outcomes of educational models are not the focus of their own approach:

> It is indisputable and uncontroversial that a Spanish speaking child taught to read and write in Spanish will do better in Spanish than will a Spanish speaking child taught to read and write in English. What is controversial is the notion that a Spanish speaking child taught to read and write in Spanish will do better in English . . . and so that is the only outcome we examine or have ever examined.
>
> *(Rossell and Kuder 2005: 46)*

The authors present the quality criteria for inclusion of studies into their sample and introduce their statistical approach; no other data are included. The studies integrated scores in reading, a more general view on 'language proficiency' and mathematics. In the further course of their article, the authors critique a number of critical reviews of their own earlier studies, pointing out that these reviews did not respect the criteria which were originally applied but introduced new criteria which Rossell and Kuder did not agree with. They then present their own critical reviews of different studies – e.g. by Slavin, Cheung and other co-authors and by Greene (e.g. Greene 1997) – indicating methodological or theoretical inappropriateness. On the basis of their review, Rossell and Kuder qualify all conclusions testifying positive effects of bilingual education models as inappropriate or irrelevant.

In the last parts of their contribution, Rossell and Kuder present a re-analysis of their own earlier research, restricting the studies included in the sample to projects which were carried out for no less than a school year. They conclude that their new approach does not lead to any revision of former findings. The best programs, according to their analysis, are structured immersion – that is, English-only programs. They state that the more first language education children received, the lower their achievement in the second language (English). The authors admit that 'a little bit of native tongue instruction does not hurt and might help if the first language is Spanish' (Rossell and Kuder 2005: 69), but they stress that 'structured immersion' programs – English-only programs with specific additional support – are the most successful.

What can we learn about effects and effectiveness of bilingual education by the contributions to the 'bilingualism controversy' presented?

Firstly, a consensus is reached about the effects or effectiveness of one specific type of models – transitional bilingual education. These are not supported by empirical research. Whereas support of the models is still present in the public sphere, in particular among lobbyists from minority groups, there is no evidence in empirical academic work that they are the best choice for bilingual learners. A second consensus could possibly be reached in further research, concerning the inclusion of home language instruction in the curriculum. The open question here is related to the amount of instruction in the home language, assuming that a limited number of lessons could be ('a little bit') supportive for the language development of bilingual learners. There is some evidence from studies on literacy development of learners who have first contact with the second or third language in older age (i.e. as adults) that it is beneficial for them to receive literacy education in their expert languages first, then to transfer literacy skills to the next language they learn (see Tarone et al. 2009; Klein and Dimroth 2005). Among the supporters of bilingual education models, we find a further consensus, indicating that bilingual education can only have positive effects if both languages are taught in a coordinated and balanced way.

Secondly, the examples show that the answer to the question of what bilingual education may or may not offer runs the risk of being dependent on implicit normative assumptions. As illustrated, the question of what is gained from bilingual education can be defined by the criterion of the advantage it offers for acquisition of the *second* language (see Russell and Kuder 2005 or Esser 2006): What is relevant is the effect of teaching (in) the home language on mastery of the majority language. A different perspective is taken by Slavin and Cheung (and others; see, for example, the contributions by Bialystok, Auer, Anstatt, and Tracy in Gogolin and Neumann 2009). Here, the acquisition of *both* languages of a bilingual individual is considered. The yardstick is mastery of home *and* majority language – or, to be more precise, no disadvantage for the majority language and at least access to literacy in the home language. The 'bilingualism controversy' as carried out in the presented research is clearly related to a normative perspective with respect to the question: what counts as relevant and valuable language competence for a person living in two (or more) languages?

Future directions: multilingual education

Societies of today and the future, in particular urban centres, are irreversibly typified by diversity in linguistic, cultural, and social terms. Vertovec's framework of *super-diversity*, as mentioned, offers a heuristic for studying the dynamic interplay of linguistic, cultural, and social phenomena which exceeds the present understanding of complexity in societies (Vertovec 2007).

Within such a framework, it is obvious that bilingual education models can open up possibilities for education in very specific, clearly defined constellations of learners, and in these – provided that the concept and practice of teaching is of good quality – serve learners' needs. If the creation of bilingual individuals is the aim, positive effects can be expected: none of the methodologically acceptable studies lead to the result that bilingual models harm the acquisition of the majority language, but they provide access to two languages within the same amount of time for learning in which monolingual models lead to success in one language. A rigorous evaluation which included a substantial number of schools and students in the city of Berlin, Germany, supports this result. It was found that the students taught in bilingual models performed just as well, and in some aspects even better, in their German language competences and in other subjects (such as mathematics) than the students who were simultaneously taught in monolingual regular classes (Möller et al. 2017). The authors conclude that bilingual models can serve as successful integrative schools in linguistically diverse constellations – that is, in constellations of teaching and learning which are increasingly common.

The present day and future linguistic reality, however, points to the fact that bilingual education is only one approach to educational success. An example of innovative approaches in which linguistic diversity in classrooms is taken into account is 'translanguaging' (García and Li 2014, Li, this *Handbook*, Volume 2). In this approach, the focus is not on two (or more) separate languages with their subsystems but on the linguistic actions of multilingual speakers and their entire language repertoires (García and Kleifgen 2019). This approach is explicitly based on the normative perspective of legitimizing the languages and language practices of minoritized populations – and thus contribute to the reduction of educational disadvantages for their offspring. Translanguaging invites multilingual learners to activate their entire language repertoires in the process of developing literacy skills and subject learning. The explicit inclusion of multilingual ways of expression into the public classroom discourse, based on all students' actual language experience, intends to support the aspiration of equity of languages, foster their students' self-concept as legitimate speakers and successful learners, and support epistemological processes which are beneficial for language acquisition and for learning in general (e.g. metalinguistic awareness; See Poarch and Bialystok 2017).

The majority of research carried out with a focus on multilingualism in teaching and learning is focused on the development of approaches for the transfer of theoretical considerations to actual teaching practice (Roth et al. 2021). Present results of – mostly qualitative – studies indicate positive effects on factors such as the classroom atmosphere or the involvement of bi- or multilingual students in language learning. Some studies with a focus on the inclusion of multilingualism in subject learning also show positive effects (Meyer et al. 2016). Overall, research concerning effects and effectiveness of multilingual approaches in teaching and learning points to a positive potential. Nevertheless, a comprehensive view on consequences of such approaches and their systematic implementation on the linguistic and general educational development of learners (e.g. by measuring effect sizes in experimental designs including control groups) is still pending.

Further development and research are necessary, taking the multitude of the linguistic architectures of societies into account. Moreover, the conventional categories of mono-, bi-, or multilingualism as descriptors of individual proficiency or social practice are increasingly questioned (e.g. the notion of a 'normal' sequence of languages acquired in the development of a person and described by concepts such as 'first' or 'second' language). In this view, a simultaneity of contact situations with different languages appears as an exceptional case, whereas it is in fact the reality, not only in contemporary urban centres. The concept of super-diversity may invite a change of perspective: towards the development of adequate and appropriate models of research on the learning and teaching of languages in the complex social environments of today's societies.

Related topics

multilingualism; language and ageing; language policy and planning; second language acquisition; language and migration

Further reading

Conteh, J. and Meier, G. (2014) *The Multilingual Turn in Languages Education: Opportunities and Challenges*, Clevedon: Multilingual Matters. (The volume explores the potential benefits for multilingual students of bi- or multilingual education and foreign language learning.)

García, O. and Li, W. (2014) *Translanguaging. Language, Bilingualism and Education*, New York: Palgrave Macmillan (The volume explains the concept of translanguaging and explores translanguaging approaches to teaching practice.)

Gogolin, I. and Neumann, U. (eds.) (2009) *Streitfall Zweisprachigkeit – The Bilingualism Controversy*, Wiesbaden: VS Verlag. (The volume offers a selection of papers which discuss (dis)advantages of bilingual education from different disciplinary perspectives, such as sociology, psycholinguistics, sociolinguistics, and educational research.)

Peukert, H. and Gogolin, I. (eds.) (2017) *Dynamics of Linguistic Diversity* (Hamburg Studies on Linguistic Diversity 6), Amsterdam: John Benjamins. (The volume discusses consequences of the rapid changes of language constellations prevalent in modern societies.)

Piccardo, E., Lawrence, G., Germain-Rutherford, A. and Galante, A. (2021) *Activating Linguistic and Cultural Diversity in the Language Classroom*, Heidelberg: Springer Nature. (The volume encourages the active and dynamic use of bi- and multilingual learners' language experience in classrooms. The practical examples are accompanied by considerations about curricular innovation.)

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9

English for academic purposes

Nigel Harwood and Bojana Petrić

What is EAP?

English for academic purposes (EAP) 'is usually defined as teaching English with the aim of assisting learners' study or research in that language' but is also a 'theoretically grounded and research informed enterprise' (Hyland 2006: 1). Ideas about the nature of language, learning, and teaching all impact on the theory and practice of EAP (Basturkmen 2006, 2021). Hence, the roles and responsibilities of the EAP practitioner are manifold: 'needs assessor, specialized syllabus designer, authentic materials developer, and content knowledgeable instructor, capable of coping with a revolving door of content areas relevant to learners' communities' (Belcher 2006: 139).

EAP instruction takes place with a range of learners, in a variety of contexts: (1) in higher education settings in English-speaking countries, (2) in settings where English has official status and is used as a medium of instruction, (3) in settings where certain school/university subjects (e.g. medicine) are wholly or partly taught in English, and (4) in settings where all tertiary education is taught in the L1 but English is recognized as an important additional language for study and where certain learning materials and texts can only be found in English (Dudley-Evans and St John 1998: 35). Although EAP is traditionally associated exclusively with tertiary education, this perception is being eroded, with a special issue of *Journal of English for Academic Purposes* devoted to EAP in secondary education (see Johns and Snow 2006). EAP should not be exclusively associated with the L2 speaker of English either: the increasingly diverse student population means that some L1 speakers of English lack academic communication skills (Hyland 2006).

EAP, together with English for occupational purposes (EOP), is a branch of English for specific purposes (ESP). Depending on the type of academic subject matter, EAP can be further divided into more specific subtypes, such as English for medicine or English for engineering. However, as Flowerdew and Peacock (2001) argue, the distinction between EAP and EOP is not always straightforward as many aspects of EAP are aimed at preparing students for future careers in their disciplines. For instance, an English for engineering course will typically cover both skills necessary for academic study (EAP), such as reading engineering textbooks and writing assignments, but also engineering skills, such as writing technical reports, which can be classified as EOP.

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History of EAP

The origins of EAP can be traced back to the 1960s, when the rise of English as a global language and its increased use in specific domains (e.g. engineering), coupled with a growing interest in language as a means of communication, its contextual variability, and specialized languages, prepared the ground for the emergence of EAP (Flowerdew and Peacock 2001; see also accounts of the history of EAP in Bell 2016; Ding and Bruce 2017; Johns 2013; and Swales 1988).

The development of ESP (which includes EAP) is commonly divided into four stages: register analysis, rhetorical and discourse analysis, study skills, and needs analysis (Dudley-Evans and St John 1998), although these stages are not discrete and elements of each stage continue to influence thinking in the field today.

An alternative view of the history of EAP is provided by Liu and Hu's (2021) co-citation analysis of articles published in the two EAP flagship journals *English for Specific Purposes* and *Journal of English for Academic Purposes* from 1980 to 2018. They identify three stages in the development of ESP as a discipline: the initial conceptualizing stage (1970s–1990s); the maturing stage (1990s–2000s), when major methodological frameworks were developed; and the flourishing stage (2000s onwards), marked by greater diversification of approaches and themes. In the sections that follow, we identify salient EAP topics. Our discussion is set against a backdrop of unprecedented growth in EAP across the globe in response to the increasing numbers of international students at universities in English-speaking countries and the establishment of programmes taught in the medium of English in non-English speaking countries worldwide (see Lasagabaster and Doiz 2021). That EAP is now a truly global field can be seen from the many national and international research groups (e.g. researchers based at the City University of Hong Kong, the University of Michigan's English Language Institute in the United States, and the Research Centre on Languages for Specific Purposes [CERLIS] in Italy), journals (e.g. *International Journal of English for Academic Purposes*, founded in association with the Asian Pacific EAP Association; *Revista Ibérica*, the journal of the European Association for Languages for Specific Purposes; and the *ESP Today* journal in Serbia), and conferences on EAP worldwide (e.g. annual conferences of BALEAP, the global forum for EAP professionals, held in the United Kingdom; and the Norwegian Forum for EAP in Norway).

Critical issues and topics

General versus specific EAP

Blue (1988) distinguished between English for general academic purposes (EGAP) and English for specific Academic Purposes (ESAP), EGAP being academic English skills, language, and activities relevant for students studying in any field and ESAP being relevant for students in certain fields only. For instance, instruction in how to compile bibliographies, take notes, and listen to lectures could be covered in an EGAP syllabus, while ESAP focuses on discipline-specific requirements, such as writing a chemistry lab report.

An important debate is how general or specific EAP pedagogy should be, Spack (1988) being an advocate of EGAP and Hyland (2002) of ESAP where possible. Arguments can be put forward in favour of both approaches, and in favour of a judicious general-specific combined approach. EGAP may appeal where student populations and fields of study are diverse and where EAP teachers have little time or resources to design subject-specific programmes since

the challenges of researching, designing, and implementing as many appropriate programmes as are needed can be formidable (see Basturkmen 2003; Belcher 2006; Huckin 2003; Hyland 2006 for further discussion). Furthermore, in many contexts, communication/cooperation between EAP teachers and content lecturers may be poor, thus preventing teachers from learning what is required of students entering various departments across their university. EGAP is also more economical, with one class for all, rather than several discipline-specific ESAP classes. On the other hand, as we shall see in the next sections, much recent EAP research has revealed that academic discourse varies from discipline to discipline, making a case for teaching students in discipline-specific classes. In addition, learners may find an ESAP class more relevant and motivating, because it directly relates to their field of study.

A more fine-grained perspective on specificity is provided by Basturkmen's (2006) distinction between 'wide-angled' and 'narrow-angled' course designs, which can be placed along a continuum rather than viewed as opposites. In between, course designs at various degrees of specificity can be established (e.g. a course for humanities students).

Needs analysis and rights analysis

Needs analysis 'underlies syllabus design, materials development, text selection, learning goals and tasks, and, ultimately, evaluation of students and course or program success' (Carkin 2005: 87). However, the meaning of 'needs' has been much debated – for instance, should satisfying 'needs' be about teaching whatever language items *most stakeholders want to be taught*, and/or be about plugging *the most pressing language gaps*? (see Belcher 2006; Brown 2016) – and there is much discussion about whose needs EAP teachers should take into account and the instruments teachers should use to conduct needs analyses. Whereas it was the language 'expert' who traditionally identified needs, more recent approaches have recommended that a number of parties should have a say, including teachers, education authorities, and other stakeholders (e.g. parents, sponsors), as well as the learners themselves (see Basturkmen [2006, 2010] and Brown [2016] for recent discussions and criticisms of various types of needs analysis).

Critical EAP

Drawing on the teachings of Paulo Freire and writings on critical pedagogy in the education literature, the critical EAP movement is concerned with social justice, change, and empowerment of the EAP learner. It is concerned with '**critiquing** existing educational institutions and practices, and subsequently **transforming** both education and society' (Hall 2000: 3, original emphasis. See also Benesch 2001; Crookes 2013). Since critical pedagogy is sometimes associated with political activism, some teachers (and learners) may feel such a pedagogy has little relevance to the EAP classroom (cf. Johnston 1999; Johns 1993). One powerful criticism that has been levelled at critical EAP is its tendency to theorize rather than to offer implementable classroom activities (Johnston 1999). However, Benesch (2001) has offered both theory and practice, describing how critical EAP can provide students with 'strategies for challenging the way things are,' (2001: 113) as well as describing critical teaching activities and materials.

Both Benesch (2001) and Hyland (2006) point out that there are many types of critical EAP, with some types being less concerned with (political) transformation than others (cf. Harwood and Hadley (2004), who distinguish between 'pragmatic' and 'critical' approaches to EAP). As Benesch (2001) notes, critical EAP is nothing if not *locally appropriate*, addressing problems relating to learners' lives and societies in any given class. Indeed, in one of Benesch's (2001)

examples of enacting critical EAP, rather than campaigning against powerful political or commercial forces, students negotiated a reduction in workload on one of their courses. Critical approaches to EAP can also focus on empowering *teachers* rather than students, and related to this is the type of advocacy research discussed by Bruce (2021) and Ding and Bruce (2017), which seeks to enhance EAP practitioners' knowledge base and standing in their university communities worldwide, through improved pre- and in-service EAP teacher training, mentoring, and scholarship/research activities.

Current contributions and research

Genre analysis

The concept of 'genre' is much discussed (see Johns 2008; Swales 1990, 2004; see also Flowerdew, this volume). Hyland (2004: 4) offers the following accessible definition: 'Genre is a term for grouping texts together, representing how writers typically use language to respond to recurring situations.' Genres are characterized by their 'communicative purposes' and by their patterns of 'structure, style, content and intended audience' (Swales 1990: 58). John Swales' move analysis (e.g. 1981, 1990, 2004) is a particularly influential type of genre analysis, with 'move' referring to a section of the text which is seen to perform a specific communicative function. Swales famously demonstrated how writers of research articles can use their introductions to create a research space, identifying a gap in research community knowledge which they proceed to fill. A wide range of academic spoken and written genres has been investigated using move analysis. Some researchers have analyzed research articles in their entirety in a range of disciplines, including biochemistry (Kanoksilapatham 2007). Others have focused on specific parts of the research article, such as introductions (Kawase 2018) and conclusions (Yang and Allison 2003). Still others have focused on other genres, such as the PhD thesis (see Thompson 2016), short thesis presentations (Hu and Liu 2018), and on student written coursework in all its forms (Nesi and Gardner 2012), while Johns (2015) focuses on the university personal statement.

As Johns et al. (2006) point out, however, a study of genre involves more than the words of the speaker or writer, encompassing 'the complexities of texts, contexts, writers and their purposes, and all that is beyond a text that influences writers and audiences' (p. 247). Hence, so-called ethnographic genre analyses have supplemented textual analysis with interviews with writers and speakers (and their audiences) and a wider investigation into the context in which the texts under study are produced. One such ethnographic genre analysis was conducted by Samraj (2002), who found that the 'contextual layers' in which the writing/speaking is produced, such as the given course, task, and field of study, can impact on the genre's form. Johns' (2002) edited collection presents the reader with a useful balance of theory and practice as to how genre-based approaches can be exploited in diverse EAP classroom contexts (see also Tardy 2019).

Intercultural rhetoric

Inspired by the field of contrastive/intercultural rhetoric (for critical and historical overviews, see Connor et al. 2016; Kubota and Lehner 2004), much research has investigated the differences in comparable academic texts across languages and (national) cultures. Some studies compare L2 writing and speaking with comparable outputs by L1 English authors, while others compare equivalent genres written by L1 speakers of different languages. Various written and

spoken genres have been investigated contrastively, including research articles, grant proposals, lectures, and seminars (see Connor et al. 2016 for a review).

Corpora and EAP

Computer corpora – that is, electronically stored databases of authentic spoken and/or written text (see Sinclair 2004) – have led to important insights about the linguistic and rhetorical features of EAP genres. By examining large amounts of academic speech and writing, corpus studies enable us to take 'an evidence-based approach' (Hyland 2006: 58) to EAP. Corpora provide the student and teacher of EAP with many different insights, including information about how frequent any given words/phrases are, the lexico-grammatical patterns which surround these words/phrases, and the text's keywords – that is, those which are unusually frequent. Different spoken and written academic genres and discourse can then be compared. As Hyland (2006) argues, perhaps the most noteworthy impact of corpora as far as EAP is concerned is the highlighting of the variation across different genres and disciplines, as we shall see in the next section. There is a growing number of spoken and written corpora of academic English available, such as the British Academic Written English (BAWE) corpus, the British Academic Spoken (BASE) corpus, and the Michigan Corpus of Academic Spoken English (MICASE).

Studies of academic speech and writing

A number of corpus studies have compared and contrasted linguistic features in academic speech and writing, notably the work done by Douglas Biber and colleagues (e.g. Biber 2006). Biber's multi-dimensional analysis methodology involves quantitatively and qualitatively analyzing large corpora of texts and identifying and describing a range of linguistic features contained in these texts. It shows how markedly speech and writing in general, and university language in particular, varies across registers. Other studies contrasting academic speech and writing include Carey (2013), who investigated the frequency of formulaic chunks used for text organization and spoken interaction by speakers of academic English as a lingua franca.

Interdisciplinary differences

Corpora reveal much about how academic writing differs across the disciplines. Many corpus-based studies have focused on specific linguistic features, such as evaluative *that*-clauses (Kim and Crosthwaite 2019). There have also been studies of spoken academic language which highlight disciplinary differences, such as Simpson-Vlach's (2006) research on linguistic items in MICASE. Interdisciplinary differences in spoken academic discourse have been investigated in lectures, with Liu and Chen (2020) contrasting the functions of lexical bundles in lectures for undergraduate students in engineering, humanities and arts, science and maths, and social science.

Intradisciplinary differences

A less studied aspect of EAP focuses on how speech and writing can differ in *the same* discipline, although evidence of variations in generic structure within a discipline was noted as early as Swales (1981). Harwood (2006, 2009) and McGrath (2016) have identified striking intra-disciplinary patterns and linguistic features in academic writing, and Harwood interviewed the writers in an attempt to account for these discrepancies, finding that his interviewees' different beliefs about (in)appropriate pronoun and citation use can partly be explained by looking at

the type of research they carry out (i.e. qualitative versus quantitative). These studies highlight that disciplinary conventions are but one factor that can influence academic writing, and future studies could look more closely at potential additional explanatory causes, such as gender, writing experience, and writing influences, as well as idiosyncratic stylistic preferences. More recent work by Muguiro (2020) has identified different writing conventions associated with interdisciplinary fields, adding further nuance.

Learner corpora

Learner corpora, that is, collections of speech and writing by learners of English, are particularly useful for EAP (see Brezina and Flowerdew 2018). A number of studies have compared corpora of L1 and L2 student writing, noting differences in the frequency of certain linguistic features (e.g. Ädel 2008; Leedham and Fernandez-Parra 2017), thereby identifying language that the learners in question misuse or use significantly more or less often than L1 speaker counterparts. A good example of a learner corpus study is Hyland and Milton's (1997) study of L1 and L2 students' use of epistemic modal language, which showed that the L2 writers relied on a more restricted set of items than their L1 speaker counterparts. A recent development in this area of research is the use of longitudinal learner corpora, allowing for the study of changes in learner language over time (e.g. Man and Chau 2019).

Corpora and EAP textbooks and teaching materials

Corpora have also been useful for identifying discrepancies between academic discourse and its representation in EAP textbooks (see Harwood 2005; Lu and Dang 2022). For instance, several studies which focus on modal verbs conclude that EAP textbooks and style guides are not only failing to teach the full repertoire of modal language, but they are also failing to teach a number of items that learners would find most useful (Bouhlal et al. 2018; Hyland 1994; Römer 2004). The textbooks are also providing misleading explanations for some of the language they do teach. However, some EAP textbook writers are now exploiting corpora in their instructional materials (see McCarthy and McCarten 2022; Swales and Feak 2000). Another encouraging development has seen teachers and researchers getting EAP learners themselves to consult corpora (Charles and Hadley 2022). Corpus studies have also examined EAP materials developed in-house (e.g. Skoufaki and Petrić 2021).

Academic and discipline-specific vocabulary

Academic vocabulary is defined as words occurring more frequently in academic than in other kinds of texts, words such as 'subsequent' or 'component' (Coxhead and Nation 2001). Several lists of academic vocabulary have been developed based on analysis of large corpora of academic texts across disciplines, the most well known being the Academic Word List (AWL) (Coxhead 2000) and the Academic Vocabulary List (AVL) (Gardner and Davies 2014). Knowing what words occur frequently in academic texts is very useful for EAP course and materials designers as it enables them to prioritize lexical items to be taught, especially in contexts where general EAP classes are held for students from a variety of disciplines. Indeed, vocabulary teaching materials have been developed on the basis of the AWL (e.g. Schmitt and Schmitt 2005). Recent work has focused on pedagogical applications of academic word lists by enriching the lists with information on frequent academic vocabulary collocations (Lei and Liu 2018) and grammatical patterns (Green 2019).

However, the concept of general academic vocabulary has been criticized by Hyland and Tse (2007), whose analyses of the AWL show that academic vocabulary varies across disciplines in terms of frequency, collocations, and meaning. Researchers following an ESAP approach have developed discipline-specific word lists in a variety of fields and subfields, such as agriculture (Martínez et al. 2009) and environmental studies (Liu and Han 2015). However, there is still much work to be done on pedagogical applications of these findings.

Lexical bundles

There has been much research focused on identifying and analyzing recurrent linguistic items which feature in academic speech and writing, with various labels used to describe this phenomenon, such as 'lexical bundles' (Hyland 2008). Commonly defined as sequences of three or more words frequently occurring in a particular register (e.g. Cortes 2004), such as *is likely to* and *these results suggest that*, lexical bundles have been found to vary across disciplines, genres, and levels of expertise. For instance, Ren (2021) found disciplinary differences in the use of lexical bundles in research articles in applied linguistics and pharmaceutical sciences, while Shirazizadeh and Amirfazlian (2020) found differences in their use across the genres of textbooks, research articles, and theses in applied linguistics.

Li and Schmitt's (2009) study of a Chinese MA student's use of written lexical bundles over a year is particularly relevant to EAP teachers since the focus is on acquisition rather than description. Longitudinal studies of acquisition of salient language for EAP should prove useful in informing teachers and materials writers how much can be learned (and how).

Experiences, beliefs, and attitudes

While research on linguistic and textual features of academic discourse continues to dominate the field (Riazi et al. 2020), researchers have increasingly turned their attention to students' and, less often, teachers' experiences of the learning/teaching process and their beliefs and attitudes regarding different aspects of academic language use or pedagogical practices. Examples of topics explored within this area include students' and supervisors' experiences of dissertation supervision (e.g. Harwood and Petrić 2017), students' and teachers' conceptions of writer voice (for an overview, see Tardy 2012), and students' beliefs and practices regarding source use and plagiarism (see Pecorari and Petrić 2014).

Writing for international publication

Much of the work discussed thus far concerns university students and student genres, such as lectures and essays set by lecturers for assessment. However, another current area of EAP research concerns the dominant position of English in international scholarship and increasing pressure on scholars worldwide to publish in English. A growing body of research on writing for international publication in English and numerous pedagogical initiatives supporting English for additional language (EAL) scholars' efforts to publish in international journals have led to the emergence of a subfield of EAP, English for research publication purposes (ERPP), with a dedicated journal, *Journal of English for Research Publication Purposes*, launched in 2020. A landmark study in this area is Lillis and Curry's (2010) eight-year ethnography of 50 academics in two Southern and two Central European countries seeking international publication in English, which provided a thick description of the academics' text production practices and experiences. The study emphasizes the role of academics' social networks and

their interactions with various 'literacy brokers' (e.g. translators, collaborators) and gatekeepers (journal editors and reviewers) who help shape their texts.

The difficulties encountered by EAL scholars seeking international publication, the changing institutional criteria for evaluating academics' work, the role of literacy brokers and gatekeepers, and the impact of the hegemonic position of English on EAL academics have been investigated and discussed in diverse contexts, ranging from China (Li and Flowerdew 2007), Russia (Smirnova et al. 2021) to Sri Lanka (Canagarajah 2002), suggesting that the pressure on academics to 'publish or perish' is a global concern. Pedagogical approaches and initiatives supporting EAL scholars are also attracting increasing attention in EAP (e.g. Englander and Corcoran 2019; Habibie and Burgess 2021).

Recommendations for practice

Pedagogical practice and empirical research in EAP are closely intertwined: much of the research in EAP is pedagogically motivated, and pedagogical practice is (increasingly) research-based. The distinction between recommendations for practice and suggestions for future research is therefore somewhat blurred. Our recommendations for practice in this section are also areas needing further research, while the future research directions we present in the next section also have implications for practice.

EAP teacher training

In some parts of the world, institutions ask ELT teachers to teach EAP without providing specialized training. A discussion of the nature of such training has largely been neglected to date. More recently, Bruce (2021) and Ding and Bruce (2017) have spoken about the need to enhance EAP teachers' training, development, and scholarship, and efforts have been made by the British Association of Lecturers in English for Academic Purposes to formulate an EAP teacher competency framework (BALEAP 2008), which lays the foundations for EAP teacher training/development.

Cooperation between EAP teachers and subject teachers

We have seen in the discussion about EGAP and ESAP that cooperation between EAP and subject teachers is an important issue. Dudley-Evans and St John (1998) describe three levels of cooperation between the EAP teacher and subject teachers, each with an increasing level of interaction: (1) cooperation, involving information gathering from subject departments about tasks, syllabi, and other information useful for EAP course design; (2) collaboration, involving EAP and subject teachers working together to develop an EAP course in support of the subject course; and (3) team teaching, with the two parties teaching together in the classroom. Those studies conducted to date (see Li 2021 for a useful review) reveal that factors impacting on the level of cooperation include the institutional context, differences in teaching methodologies and philosophies, lack of interest and understanding in other stakeholders' potential contributions, poor or non-existent communication, the low status of the EAP teacher in some contexts, and related issues of power. Bond (2020) offers useful recommendations for addressing some of these issues to achieve a greater cooperation between language and disciplinary experts (i.e. EAP and subject teachers) and contributors to Bruce and Bond (2022) extend the conversation about cooperation to institutional policy-making.

Future directions for EAP research

We now identify several areas where further research is needed to enhance the knowledge base of EAP.

The efficacy of EAP

Master (2005) points to the lack of well-designed empirical research focused on the efficacy of EAP instruction: does EAP work? If there are two EAP programmes running, which leads to the better learning outcomes? Some of the work in this area includes Storch and Tapper (2009), a study of the impact of a postgraduate EAP writing course in Australia, and Robinson et al's (2001) experimental study of the effectiveness of teaching oral discussion skills using three different methods, one of a few studies which compares and contrasts different pedagogical approaches to EAP. James' (2014) review of studies of learning transfer from EAP instruction to students' other courses also identifies gaps in our knowledge.

Ethnographies, academic literacies, and deeper understandings of EAP contexts and practices

A case can be made for the need for EAP research to focus more heavily on 'processes and contexts' (Belcher 2006). The focus has often been on textual description, given the 'time sensitive nature of most ESP needs analysis, curriculum development, and the very real-world needs of learners', all of which has meant 'the more time-consuming investigations of processes and contexts' may have been somewhat neglected (p. 149). However, there have been a number of landmark qualitative case studies documenting both L1 and L2 students' difficulties, particularly with writing, in university contexts (e.g. Casanave 2002; Spack 1997). A related body of literature has focused on the process of academic enculturation (e.g. Casanave and Li 2008). Another group of researchers associated with (critical) ethnographic research is 'academic literacies' scholars who seek to gain insights into the contexts in which texts are produced, the actors who produce them, and their practices, rather than limiting themselves to textual analysis (see Lillis and Tuck 2016 for a survey of work conducted to date in this field).

Uses and abuses of technology

The development of corpora has enhanced our understanding of language description, but there remain question marks around the impact of various computer programs and apps for good and ill. Google Translate has attracted research interest as to whether it enables students to produce enhanced text and whether texts machine translated into English are viewed/assessed more favourably than texts written in the target language without the use of such software (e.g. Groves and Mundt 2015, 2021; Stapleton and Kin 2019). These studies have also begun to investigate teachers' attitudes regarding the legitimacy and pedagogical application of Google Translate in the EAP classroom, uncovering a range of views. Guo et al. (2021) report that the use of Grammarly led to students successfully revising a large proportion of the errors in their texts flagged up by the program, in contrast to the much poorer error reduction rates as a result of using Microsoft Word's spelling and grammar checker, although some of the Grammarly feedback was found to be inappropriate. As Google Translate, Grammarly, ChatGPT, and other packages evolve, their impact on learners and their perceived place in EAP will require

further research, as will the need to ensure students (and teachers) use such resources critically and ethically.

Precarity

Two monographs which have highlighted the precarity of EAP teachers' careers are Ding and Bruce (2017) and Hadley (2015) (see also Bell 2016, 2021). EAP teachers can be seen as remedial teachers or 'service-providers' fixing students' grammar with little academic standing or identity of their own. Job security may be minimal and teachers' pay and conditions can be attacked and undermined, as universities have sought to maximize revenue streams associated with English language programmes. Our chapter has illustrated the considerable amount of EAP research which focuses on target texts, text types, and discourses and on evaluating students' performances in mastering these; in contrast, Ding and Bruce and Hadley turn the spotlight on the EAP practitioner and his/her perspective, something far less investigated, in order to explore 'the development, identity, role and agency of the practitioner' (Ding and Bruce 2017: 2). A downbeat way to look at their findings is to highlight the low status and precarity associated with EAP in their work; a more optimistic read would be to stress the efforts of BALEAP and other professional organizations to enhance the knowledge base and qualifications of EAP practitioners worldwide, as well as to disseminate the wealth of high-quality EAP research as demand for EAP grows around the world exponentially.

Related topics

business communication; content and language integrated learning and English medium instruction; corpus linguistics; curriculum and material; genre; intercultural communication; language teacher education; lexis; medical communication; technology and language learning

Further reading

Basturkmen, H. (2010) *Developing Courses in English for Specific Purposes*, Basingstoke: Palgrave Macmillan. (This book balances theory and practice, containing extended examples of how needs analysis was conducted, and courses designed for different situations, including providing English courses for the police, for doctors, and for thesis writing.)

Brown, J. D. (2016) *Introducing Needs Analysis and English for Academic Purposes*, Abingdon: Routledge. (This book usefully introduces and defines the key concept of needs analysis, describes and exemplifies different techniques used to conduct needs analyses, and addresses various problems the needs analysis will have to consider, such as which parties are permitted to influence whose 'needs' should be served when designing an EAP programme.)

Dudley-Evans, T. and St John, M.-J. (1998) *Developments in ESP: A Multi-Disciplinary Approach*, Cambridge: Cambridge University Press. (This practical book provides a good introductory survey of major issues in ESP, including a separate chapter on EAP, with numerous illustrative examples, tasks for discussion and analysis, excerpts from textbooks, tests and other materials, an answer key for self-study purposes, and suggested readings for each chapter.)

Flowerdew, J. and Peacock, M. (2001) *Research Perspectives on English for Academic Purposes*, Cambridge: Cambridge University Press. (The 25 chapters in this book, written by leading figures in EAP, provide a comprehensive survey of major issues in EAP from a research perspective, focusing on research problems, methods, and findings and their practical applications in various contexts.)

Hyland, K. and Shaw, P. (eds.) (2016) *The Routledge Handbook of English for Academic Purposes*, Abingdon: Routledge. (This comprehensive handbook consists of eight sections and includes 45 chapters, each providing an overview of a theme within EAP, ranging from the main theories and concepts to pedagogical applications and EAP contexts.)

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10
Language testing

Barry O'Sullivan

Historical perspectives

The modern era of English language testing grew from a test taking population of just three candidates for the Cambridge Proficiency in English test in 1913 to 35 million TOEFL takers since its launch over 45 years ago (Educational Testing Services 2021) and 3.5 million IELTS takers in just for one year (IELTS 2020). In recent years, a number of tests have made inroads into the English language market, often driven by emerging technologies, though relying on traditional formats. Despite the changes introduced to the area by these disrupters, many of the issues that concern us nowadays reflect often decades-old arguments, as we will see in the remainder of this chapter. However, change is around the corner. The release, in November 2022, of ChatGPT has the potential to dramatically impact the world of testing, so I will touch on this emerging technology later in the chapter.

Critical issues and topics

In this section, I will focus on three of the issues that drive debate in the language testing world: validity and validation, localization, and technology.

Validity and validation

The concept of validity has been with us for many years, with the first attempts to formalize a theoretical model presented by Edward Cureton in his contribution (entitled *Validity*) to the first edition of Education Measurement in 1951. That same year, Lee Cronbach (1951) published his reliability statistic (Cronbach's alpha), though an earlier approach had been published by Kuder and Richardson in 1937. Both approaches were based on the assumption that all test items focused on the same underlying construct. For perfect reliability (an estimate of 1.0), a candidate would need to get all questions right or wrong. Unfortunately, such a test would have limited or no practical value; this is known as the attenuation paradox (see Loevinger 1954). Limitations of space mean a more detailed discussion of reliability is not possible here. However, I'd suggest that the reader view reliability estimates with caution, particularly

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if details of the test population are not available (since estimates are affected by range of ability and population size).

At this period in time, test development was widely seen as a balancing act between validity and reliability because by narrowing the construct the test developer could increase the reliability. Over time, validity came to be seen as consisting of the concept of construct together with content (what was actually contained in the test) and criterion (how the test outcomes compared with other measures of the same ability or trait); see Cronbach and Meehl (1955). Gradually thinking changed, and by the time Samuel Messick published his *Validity* chapter in Education Measurement in 1989, the general belief was that construct lay at the centre of the whole validation process, with a number of aspects (consequential, content, substantive, structural, external, and generalizability) contributing to what came to be seen as construct validity. The concept of fairness (see Kunnan 2000), which includes validity as well as issues related to access and justice, marked an attempt to broaden our understanding of the importance of test performance interpretation and use.

Contemporary thinking

The most influential of the current validation theories is that of Kane (2006, 2013). Kane (2006) proposed an argument-based validity approach comprised of an interpretive argument (IA) and a validity argument (VA). He later updated this to an interpretative use argument (IUA) and a VA (Kane 2013). The objective here is to clearly outline a series of inferences that underly the intended score interpretation and use, starting with the observed test performances and progressing to decisions that are ultimately made on the basis of these performances. For a graphical presentation of the concept, see Figure 10.1. In this approach, the researcher/validator is, in effect, setting out an *outcomes framework* consisting of a fixed number of claims about the test that will later be explored in order to gather evidence of the validity of the use of the test in the particular context under investigation. This has the effect of limiting the scope of the

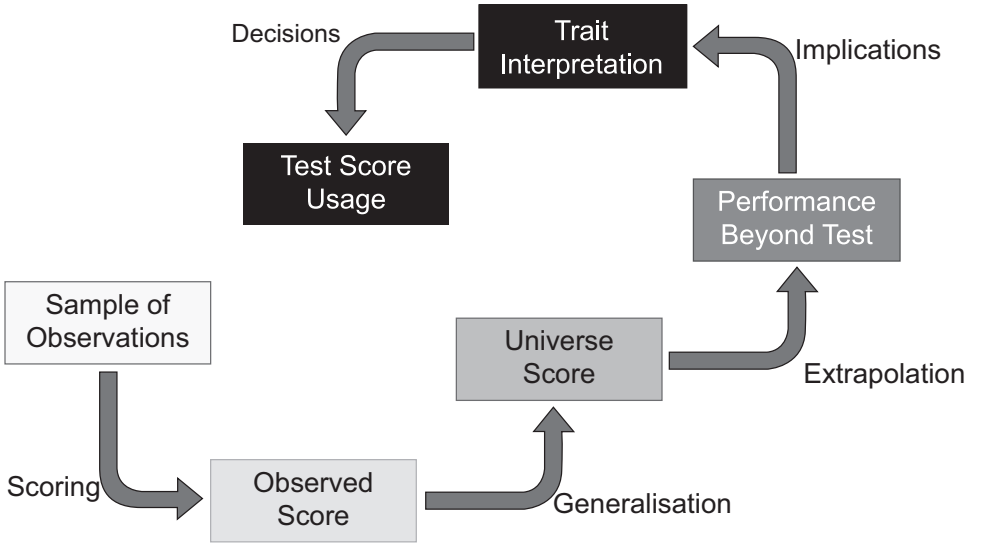


Figure 10.1 Kane's interpretative argument (IA)

validation to a manageable level, important to the practicality of the approach since Kane (and others) felt that while Messick's unified model of construct validity was 'elegant and conceptually rich and suggestive', it wasn't terribly practical (Kane 2012: 7) in that it conceived of validation as a never-ending process.

The VA then sets out to garner evidence to support or refute the intended inferences highlighted in the IUA.

Kane's argument approach to validity is unique because it specifies a starting point, how to proceed, and when to end, while his use of Toulmin's (2003) model of argumentation then offers a systematic process to presentation of the evidence. Kane (2006, 2012) stresses the fact that his approach is not meant as a recipe to be followed systematically. He sees it as more of a broad structure upon which to construct a validation argument. In the most comprehensive argument created to date, Chapelle et al. (2008) demonstrated this by adapting Kane in their validation argument for the TOEFL iBT.

More recently, Chalhoub-Deville and O'Sullivan (2020) have set out a broadening of the Kane approach with their conceptualization of validation as a series of integrated arguments. This brings together existing thinking in terms of test development theory and practice as suggested in models, such as evidence-based design (Mislevy et al. 2003) and the original sociocognitive frameworks (O'Sullivan and Weir 2002; Weir 2005). It also consolidates the thinking of Chalhoub-Deville (2016) and O'Sullivan (2016) around the role in validation of understanding the needs and expectations of, and communicating with, all test stakeholders.

The four argument types suggested by Chalhoub-Deville and O'Sullivan (2020) can be seen in Figure 10.2. Chalhoub-Deville and O'Sullivan (2020) argue that current approaches to validity and validation, including that of Kane, are essentially measurement driven, as demonstrated by the range of statistical evidence typically referred to in the literature. While not dismissing the importance of measurement, they argue that such approaches must include an explicit focus on the language to be tested. An example of this is the use of the Khalifa and Weir

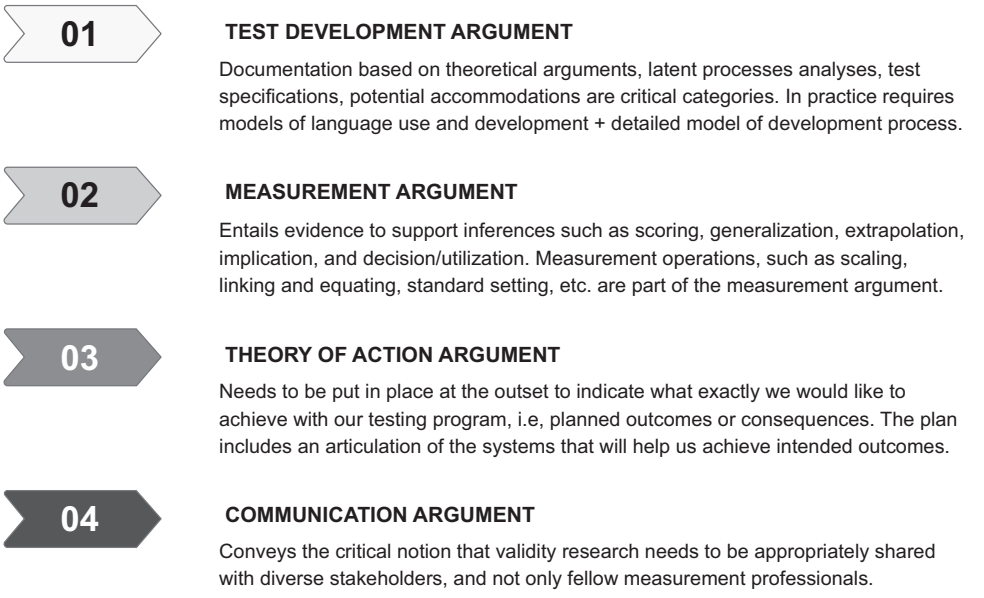


Figure 10.2 Chalhoub-Deville and O'Sullivan's (2020) integrated arguments

(2009) model of reading progression by a number of tests (e.g. the Main Suite from Cambridge English Assessment and the British Council's Aptis). Chalhoub-Deville and O'Sullivan also support Mislevy et al. (2003) and Weir (2005) in arguing that the systematic documentation of the development process should also be used as evidence in a validity argument.

What is particularly novel in this approach is the focus on test stakeholders. Chalhoub-Deville and O'Sullivan (2020: 151) argue that 'a . . . theory of action argument . . . needs to be put in place at the outset to indicate what exactly we would like to achieve with our testing program, i.e., planned outcomes or consequences'.

This theory then sets the basis for the communication argument, where appropriate models of communication, which take into account the context of test use, are developed in order to interact with stakeholder groups to involve them in identifying and resolving development and validation issues related to the test.

Localization

In terms of language testing, localization is the process of ensuring that a test is appropriate for use in a particular context, 'it must be shown to *fit* with the needs of that context' (O'Sullivan 2019: xviii). When the test fits into a learning system (see O'Sullivan 2020) it means that it is appropriate to the test takers in all ways. In practice, localization is most obviously realized in the test task element of that model. Within this level, O'Sullivan (2019) identifies three broad areas in which localization should be realized. These are the following:

Linguistic: The language must be appropriate for the target population. This extends to the input (L1 and/or L2) and the expected output. This also refers to the construct definition, which is the target language knowledge or use to be tested in order that it links back to the test taker.

Social: The topics and themes must be appropriate to the target population. This can extend from surface level changes (e.g. changing character or place names), to cultural appropriateness (e.g. taking local customs and beliefs into account), and on to images (again taking local experiences, cultures, and beliefs into account).

Experiential: The contents of the test should not come as a surprise and must be appropriate to the test takers. This can relate to the topics and themes (which should be both socially appropriate and familiar to the candidates), the task types, and the expected response types (e.g. avoid asking a person who has no experience of social media to respond to a task based on an interaction using that medium).

We should also recognize that localization is also likely to be considered when designing the scoring model for the test. This may relate to the following:

Rating scale: In the same way that rating scales are expected to reflect the target language, in local tests they should also take into account specific local language usage. For specific purpose tests such as EAP, the scale should include specific rhetorical structures such as subject-specific use of voice.

Rater selection: Raters should be selected based on their familiarity or lack of familiarity with local language usage; otherwise, there is a significant risk of bias. This

bias can be towards or against the test taker and its unpredictability makes it a threat to the reliability and validity of the scores awarded.

Standardization: Standardization (i.e. training) should take into account the need to focus on the locally specific features of the scale so that they can be evaluated appropriately.

Score reporting: Score reporting should be meaningful to the context-of-use (so that they are readily interpretable by local stakeholders).

In their collection of papers based on English language tests in Asia, Su et al. (2019) demonstrate that it is becoming increasingly common to find locally developed tests that meet the same requirements of consistency and accuracy as their international counterparts. The book is also interesting in that O'Sullivan (2019: Introduction) and Weir (2019: Chapter 8) set out very similar conceptualizations of how different types of tests relate to a local context:

- Local – tests designed for a specific local population and purpose
- Glocal 1 – designed in a specific local context but with the purpose of external/international recognition and acceptance
- Glocal 2 – test designed for a global population/purpose but deliberately altered to meet the needs of a specific population and/or purpose
- Glocal 3* – designed in a specific local context for a specific local purpose but, at some point, gains external/international recognition and acceptance (without changes to the test)
- Global – so-called international test, designed for a broad global population (i.e. population agnostic); commonly claimed to fit a local context, though this claim is rarely supported by research

* Not in the original list but added here for the first time

The issue of localization is important in that it calls into question the use of tests which are designed to be either population or context agnostic, or both. The focus of the sociocognitive model discussed earlier has always been on the individual in the test event; in fact, it was this assumption that first sparked the idea of the necessity for such a model. In doing so, the need to fully consider that individual within their social and education context is seen as critical to the drawing of inferences based on test performance. If the test cannot be demonstrated to reflect both, it is unlikely that its use within a particular context can be rationalized. This is critical in areas such as the use of tests of language proficiency in high-stakes contexts such as for migration-related decisions. I am not arguing against the use of tests in such situations, but I am arguing against their use without evidence that this use is appropriate from the perspective of the test taker and that the decisions made on the back of test performance can be fully justified.

In a special edition of the *Language Assessment Quarterly* journal (2021) on the topic of language testing of low-literate migrants, Deygers et al. (2021) highlight (amongst other things) the narrowing of the literacy construct in international test systems, such as PISA and the ideological basis of much testing practice. We saw that any narrowing of the test construct will increase the reliability estimate but decrease test interpretation as we are getting a very limited overview of an individual's overall ability. When ideology results in language tests being used as a proxy for a different construct (i.e. here as a proxy for integration potential), it should be recognized as test misuse (Carlsen and Rocca 2021). We also now know that the language performance of low-literate candidates is significantly impacted by physiological differences in brain structure (e.g. see Dehaene et al. 2015; Boltzmann et al. 2019; and Rüsseler et al. 2021) and that similar individuals demonstrate unintended (and unexpected) interpretations of

visual and verbal scaffolded support by participants (Altherr Flores 2021). These combine to suggest that our current approaches to test design for such candidates is seriously flawed; for example, Rüsseler et al. (2021) demonstrate that they are sufficiently different from candidates with higher levels of literacy to warrant different tests and different delivery conditions (e.g. pre-test cognitive assessment and in-test support or scaffolding). Failure to do so is highly likely to result in negative consequences for candidates, a situation seen by Carlsen and Rocca (2021) as another instance of test misuse (whether the negative impact is intended or not).

Hooft et al. (2021) report on a two-phased assessment they developed to assess literacy skills amongst migrants in Belgium in which a pre-screening scan first assessed basic literacy, with those found to be below a pre-determined level spared the need to move on to the (likely useless and frustrating) main test instrument. While this approach is clearly superior to current approaches, the addition of a battery of instruments which take into account the findings of Rüsseler et al. (2021) and Altherr Flores (2021) would seem to me to offer a more persuasive approach.

Technology in language testing

Technology has played a significant role in educational testing for many decades. The introduction of optical mark recognition in the 1960s, followed by the bubble-card reader a decade later coincided with a dramatic growth in language learning and testing globally. While the technology facilitated this growth, it also led to the narrowing of the construct targeted in these tests. A good example of this is the original TOEFL test from 1964, in which the written expression paper involved no actual writing; instead, it focused on micro-level features of writing (grammar, vocabulary, cohesive devices, etc.) in a long series of multiple-choice questions.

In the decade since the first edition of this *Handbook*, no new tests have emerged in which the true value of technology has been exploited in a meaningful way. One test that was launched in this period is the Duolingo English Test (DET). In his review of the test, Wagner (2020) points to the lack of reference to a meaningful underlying language model while highlighting the claims of the developer that the test was designed with a focus on efficiency and accessibility. Wagner goes on to explicitly reject claims that the DET may be appropriate for use in university admissions decision-making.

In many ways, the narrowing of the language construct, seen in the first global test to include auto scoring of writing and speaking, the Pearson Test of English (PTE), but extreme in the case of the DET, highlights a failure of technology to deliver on what at one time appeared to hold great promise.

Focusing first on writing: in their TOEFL iBT, Educational Testing Services (ETS) have operationalized their writing scoring engine to work as a support for raters, although they have not operationalized the technology to the level that it can lead on the scoring of test essays. At the same time, they offer a speaking auto-scoring system for practice only. It is likely that the experience of USA-based developers have had with tests such as the SAT makes them more cautious than their rivals. Such tests, heavily reliant on AI technology have been heavily criticized in terms of fairness of the scores they generate (see Perelman 2012). Indeed, Perelman has become increasingly critical of the use of AI-driven scoring engines even setting up a website dedicated to the generation of nonsense texts with which many (he would argue *most*) such systems can be subverted (https://babel-generator.herokuapp.com). Perelman (2017) goes on to question the fairness of automated essay scoring (AES) systems, referring to bias towards particular sub-populations and against others. In addition to this criticism, Williamson et al. (2010: 2) admit that ‘automated essay scoring systems do not measure all of the dimensions

considered important in academic instruction. Most automated scoring components target aspects of grammar, usage, mechanics, spelling, and vocabulary'.

They also recognize that these same systems are not good at assessing rhetorical voice, the logic of an argument, the extent to which particular concepts are accurately described, or whether specific ideas presented in the essay are well founded.

When we look to more up-to-date studies on the use of technology, the message does not improve. In their study, Cohen et al. (2018) concluded that AES validity is in fact lower than the correlation of human ratings with the criterion of an estimated true score, when this correlation is essentially corrected for attenuation.

It is perhaps not that surprising that major tests such as TOEFL and IELTS continue to hesitate in the use of AI-based scoring systems, where these systems have the final say in score decision-making.

Whether we are assessing writing or speaking, the systems essentially work on the same principle. A written text is presented to the scoring engine for analysis using a range of natural language processing (NLP) and speech processing algorithms. Decisions are then based on the findings of the analysis when they are compared to a set of criteria for which score/grade data have been generated by human raters/assessors.

In terms of writing assessment, the process is relatively straightforward where the test taker generates the test digitally. In this situation, the text can be presented directly to the scoring engine for analysis and evaluation. However, in a process such as that of China's College English Test, where millions of handwritten texts are first scanned and 'read' using an AI-driven programme before being digitalized for later analysis, there is a likelihood of some degree of error. In some ways, the situation with speaking is similar to this latter context in that the AI system must first interpret the sound file and then generate a digital text before making it available for analysis and scoring.

In order to facilitate the use of AI-driven scoring systems, the tests referred to (PTE and DET) highly constrain the expected output with easily predictable outputs, such as sentence generation from set words and descriptions of fixed images. This is done in order to reduce the potential for error in the scoring system. Of course, while the tasks created to facilitate this may not reflect an individual's ability to use the language appropriately (Wagner and Kunnan 2015; Wagner 2020), they can be scored quite accurately. Where candidates are expected to produce extended outputs, the legitimacy and appropriacy of the scoring systems used have yet to be established. This is because, in addition to the inability of the scoring system to deal adequately with creativity of content (e.g. through the use of sarcasm or humour), there are clearly other major issues that have not been adequately (if at all) dealt with. I briefly discuss some of these in the following paragraphs:

Accuracy: Word error recognition (WER) is a calculation of the accuracy of a transcription. Without such a measure, test users have no idea of how to establish the appropriateness of any score that comes from such a system. It is clear from the lack of published estimates that the tests currently using an AI-driven approach to scoring either do not calculate WER or have decided not to release their estimates. If we do not know how accurate the transcription really is, we cannot accept the claims made by the test developers regarding the acceptability of the scores or grades they award.

Language model: The second significant issue is the language model used to analyze the transcripts and generate scores based on them. It is not at all clear that the models used are based on writing or speaking. Clearly, if it is the former there will be some significant issues around acceptability and appropriateness of use, as the differences between the two skills has been demonstrated by Carter and McCarthy (2015).

Bias: The next relates to the potential for such systems to inadvertently develop significant bias towards or against the language of some speakers. A particularly well-known example of this is where, within a few days of each other, two native speakers of English from Ireland failed to reach the standard set by the Australian government for speaking proficiency when they took the PTE test (they were well above average on the other papers, as we might expect). The story was reported by much of the world's press, where it was generally considered quite amusing (e.g. BBC 2017). However, the story masks an extremely serious issue for all test developers. It is probable that the failure of the PTE system was due to the fact that there was no Irish-English model of success with which to compare the language of the test takers. This led to an in-built bias in the system, of which the test developers may or may not have been aware. This hidden bias is not just a theoretical threat to the validity of test score interpretation and use; see, for example, the significant issues with racial bias in facial recognition applications highlighted by Buolamwini and Gebru (2018). O'Sullivan et al. (2023) describe the first published study in the area of language testing to apply an approach proposed by Mitchell et al. (2019), which is designed to offer an accessible and transparent validation of the scoring model in terms of bias. The so-called *Model Card* approach has been adopted by the British Council in its evaluation process for auto-scoring engines and I expect other test developers to either follow suit or to offer an appropriate alternative in the coming years.

Gaming the system: Of course, the perennial issue with auto scoring is the fact that it can be gamed – and relatively easily at that in some cases. In addition to the arguments of Perelman, a recent example from Knoch et al. (2020) highlights the problem of gaming the PTE speaking test. They report that test takers were able to make significant improvements to their speaking test scores (though not their other skills scores) 'by using construct-irrelevant methods such as speaking continuously without pausing, and changing their voice quality' (Knoch et al. 2020: 565).

This all said, language testing (and applied linguistics in general) needs to take into consideration the impact of using AI on human speech and the interaction between these two being reciprocal. It is not unreasonable to anticipate that in the near future a major part of our everyday transactional talk would be assessed by AI-assisted technology (e.g. talking to your bank on the phone). When in such situations, we are likely to accommodate our speech to suit the purpose and the specific technology so that it is easily assessed/understood by that technology. It seems probably that our language, at least in specific domains, will change because of this, and as such we can expect that assessment of it will need to change too (Parvaneh Tavakoli, personal communication).

Before moving on, it is necessary to reflect on the potential impact of large language models such as ChatGPT and GPT-4. Within six months of its introduction in November 2022, ChatGPT had amassed over 100 million users worldwide. Despite its tendency to generate *digital hallucinations* (i.e. inventing some information to include in its responses to queries), the system was lauded for its ability to communicate in a human-like fashion. It was soon used for a range of activities from supporting automatic or machine-assisted text and test item generation to writing everything from school essays (though not always successfully) to news reports to computer programming code.

However, the technology is not without its critics. Noam Chomsky (EduKitchen 2023) referred to ChatGPT as 'High-tech Plagiarism', while concerns with privacy led to it being banned by the Italian government in April 2023 (McCallum 2023). Meanwhile, universities advised staff to rethink their assessments in response to the perceived threat, according to Weale (2023). While there were obvious weaknesses in the early versions of the system, the

later version (powered by GPT-4) appears to have resulted in significant improvements, see for example Capelouto's (2023) list of examinations passed.

In terms of language testing, the threat to online assessment is obvious. Any weakness in a delivery system's defence can result in a LLM-created response, with the (current) exception of speaking. It seems clear that test developers will have to react to the new technology by re-thinking the way tests are designed and delivered. This will have to involve including the new technologies in the design, development, and delivery of future tests. This is likely to increase the costs across the board and the development teams will need to represent a broad range of expertise, with language testing specialists forming just one element of the team which will need to also include experts across a range of areas such as LLM, machine-learning, user experience, and security.

Current contributions and research

Corpora have played a role in understanding and defining the underlying construct in both speaking and writing for a number of years. Over the past decade and a half, they have also influenced the way in which such constructs are operationalized in language tests. The most obvious of these are the TOEFL11 (Blanchard et al. 2013) and the Cambridge Learner Corpus (developed by Cambridge University Press in partnership with Cambridge Assessment English). These corpora have been used by ETS and Cambridge Assessment English, respectively, to support the development (e.g. task type and format, scoring criteria) and validation of specific tasks for their tests. The growth in interest in the use of corpora is evidenced by the special edition of Language Testing in 2017 and the development of new test-taker corpora (e.g. Trinity College London/Lancaster University speaking corpus and the British Council/Lancaster University speaking and writing). These corpora offer test developers a source of validity evidence in demonstrating the link between predicted actual performance under test conditions.

Another interesting example of how technology has had a direct impact on test development is the eye-tracking study by Brunfaut and McCray (2015). The cloze task in the original version of the British Council's Aptis test appeared to work quite well on the measurement level as it was at the expected level of difficulty. However, there was some concern that test takers were not actually reading the whole text when responding to the questions. The Brunfaut and McCray (2015) study demonstrated that this was indeed the case and resulted in an alternative task type being developed and validated in Brunfaut's (2016) follow-up study. This pair of studies not only contribute to the revision of the Aptis test (the new task replaced the original) but also contributes to the concern that cloze tasks do not offer a meaningful test of a learner's reading ability.

Other ground-breaking eye-tracking studies on the practical and theoretical application of eye-tracking technology to learning and assessment is typified in the work of Aryadoust and Ang (2019) and Aryadoust (2020). The first of these studies offers a valuable study of the broad domain of research undertaken using the technology since it first emerged in the mid-1990s. This helps us to gain knowledge of the approach while also leading the reader to a better understanding of how the technology might be used (often in conjunction with other technologies) in setting out a future research agenda. In the second study, Aryadoust (2020) demonstrates how an eye-tracking approach can help test developers and validators identify the way in which test takers interact with the written text in a listening test, demonstrating quite starkly the difference in how test takers responded to multiple-choice questions (MCQs) and matching questions (e.g. spending far less time reading the former).

Recommendations for practice

Based on the points raised in this paper, the following suggestions seem appropriate: Theorists and practitioners should continue to build on the thinking behind the current interpretation of the socio-cognitive model (Chalhoub-Deville and O'Sullivan 2020). Existing validation approaches (e.g., Messick, Kane, Mislevy, Weir, Chalhoub-Deville and O'Sullivan) should not be seen as offering the final word but should be constantly questioned and renewed, in the same way that current theories have built on each other over the years.

Localization should be recognized as being central to test use and interpretation (i.e. validity). Evidence of the appropriateness to both the individual test taker and the specific context-of-use of test content, format, and delivery must be explicit. In addition, the quality of local and 'glocal' tests must be demonstrated across all aspects of the development process. Linked to these issues is the area of assessment literacy (Davies 2008). While much current work in this area focuses on teachers, there is a growing awareness of the need to broaden the scope of this area to include the major stakeholder groups identified by O'Sullivan (2016), and Chalhoub-Deville and O'Sullivan (2020).

In order to more fully understand and justify the scoring system, we need more transparency; for example, we need to be able to explain and justify how and why auto-scoring systems make specific decisions. We also need to demonstrate the accuracy of the basic building blocks of such systems (e.g. using WAR or another appropriate estimate) and demonstrate an awareness of the ethical and operational impact of how we actually use auto-scoring engines in our tests; for example, should the system be human-led (with the machine offering support in terms of a recommended score or a partial score) or machine-led (with humans only scoring texts the machine has trouble with)? These are questions largely ignored in the broader language testing literature. In addition, and perhaps most importantly, we need to demonstrate that our auto-scoring systems have been built on appropriate and balanced input data. With this in mind, I suggest we take on the challenge proposed by Gebru et al. (2020) in their working paper entitled 'Datasheets for Datasets', to devise a system of specifications for the datasets we use in our work, both in language testing and across applied linguistics in general. The basic idea behind this is to ensure that all levels of proficiency are represented by an appropriately balanced training dataset. An example of this is to ensure that women are fully represented at the high proficiency level in the training data so that the system 'learns' to avoid bias against women at this part of the scale. By systematically specifying training (or research) datasets, we can hope to avoid issues, such as the systematic failure of facial recognition software reported by Buolamwini and Gebru (2018) – with all three commercial classifiers reviewed performing best on lighter male faces and worst on darker female faces.

Future directions

It seems very clear now that technology will continue to influence the work we do in language testing. Due to the 2020–2021 COVID-19 pandemic, there is increased pressure on education ministries to move to a digitized learning system which includes both teaching and assessment. When combined with a growing awareness of the need for these systems to encourage the development of language use as opposed to language knowledge, we have already seen that technology-based solutions to support the teaching and testing of the productive skills are growing. As this happens, it is imperative that we address the major issues outlined in this

chapter, or there is a real danger that public education systems will unwittingly act to broaden already significant educational and social divides. It is not inconceivable that less well-off students will be offered what governments see as affordable automated learning and assessment systems that are inherently biased, while those who have access to a private human-led education will continue to benefit from the associated privileges.

In terms of specific directions that technology might allow, I see the AI-assisted text and item generation and the estimation of item/task difficulty as being two game-changing innovations. This is because they will allow developers to generate vast quantities of test content at an appropriate level of difficulty, thus allowing for

- more secure tests (e.g. harvesting test items will become redundant as test content will become impossible to predict),
- personalized tests (where items are presented to a test taker based on their unique profile), and
- eventually the elimination of the need for tests (though not the assessment) as learning in a digital environment in which all content is known and scaled will provide sufficient data for decisions on achievement or level to be made automatically within the system.

The new LLM technologies, and the teams put together to build new testing and assessment systems, are likely to lead to advances in the areas such as auto test generation, auto item/test difficulty estimation, as well as transparent and bias-free auto scoring systems. In addition, they can contribute to the development of test-taker corpora and to the use of these in increasing the efficiency of test development and scoring systems. They can also help us to realise the ultimate aim of creating personalized learning and assessment systems. Of course, at the moment, the technology is still new – ChatGPT is still less than six months old at the time of writing this chapter. So, while a number of threats to current language testing practice have been identified, the ideas contained in this paragraph are, for now, just ideas.

Of course, for these things to happen, developers of learning systems must accept that an approach such as the integrated arguments approach proposed by Chalhoub-Deville and O'Sullivan (2020) will need to drive their work. By understanding the importance of supporting such systems, with clearly defined measurement *and* language development models, developers can finally move away from the solipsistic attitudes that have overwhelmingly defined practice in the past but which are beginning to change, particularly in the teaching and learning arena.

Related topics

bilingual and multilingual education; language and culture; language and migration; literacy; neurolinguistics in language learning and teaching; second and additional language acquisition across the lifespan; sociocultural approaches to language development; technology and language learning

Further reading

Chalhoub-Deville, M. and O'Sullivan, B. (2020) *Validity: Theoretical Development and Integrated Arguments*, Sheffield, UK: Equinox. (This book offers a broad overview of scholarship in the area of validity and validation. It also sets out a theoretical rationale for an approach to validation that integrates a number of different aspects or arguments while recognizing the need to focus such arguments on specific and varied stakeholder groups.)

Language Assessment Quarterly Vol 18(5) 2021 pp.459–557, Special issue on Language Testing for Low-Literate Learners. (This special issue contains a series of papers that explore a previously neglected topic – the focus ranges from how current approaches fail these learners to the misuse of tests. It also

contains a commentary article from Barry O'Sullivan and Micheline Chalhoub-Deville, which focuses on validation issues in such situations.)

Su, L. I.-W., Weir, C. J. and Wu, J. R. W. (2020) *English Language Proficiency Testing in Asia: A New Paradigm Bridging Global and Local Contexts*, Oxford: Routledge. (This book presents a series of chapters related to the development of a variety of English language tests in East Asia. The chapters represent current practice in the development of locally appropriate test instruments.)

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11

Language awareness

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Introduction

The Association for Language Awareness defines language awareness as 'explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching and language use' (ALA n.d.). Despite the definition being endorsed by an authoritative professional association in the area, debates concerning the exact meaning of the term continue to rage among applied linguists, who hold different orientations in relation to using the term to inform their research and practice. This chapter aims to offer a brief historical background to the emergence and development of language awareness as an educational movement before elaborating the critical issues that have been addressed in relevant studies and the important insights that these studies have generated for the field. Given the diversity of issues that could be engaged with through the lens of language awareness, this chapter will focus on what have been considered the 'core business' of language awareness research (van Essen 2008: 3; Svalberg 2007, 2009). As reflected by the definition of the term promoted by the Association for Language Awareness, the core business of language awareness is to do with 'language teaching and language learning, and with language teachers and language learners' (Garrett and Cots 2017: 1), although the notion of language awareness is highly relevant in different arenas of life and society such as politics and public communication.

Historical perspectives

Language awareness emerged as an educational movement in response to the widely noted educational challenges associated with migrant children's low English literacy and pupils' lack of success in learning foreign languages in UK schools in the 1970s. The notion of language awareness was proposed as an integral component of language education in schools promoted by Hawkins (1999), who argued in favour of the need to ensure that pupils learn about languages and how to learn languages. Hawkins (1999) further advanced a theorization of language awareness as a critical means that bridges the learning of subject content at different levels of education, as well as the learning of first and additional languages. The language

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awareness movement reached quite a few important milestones in the 1990s with the formal establishment of an international association and its flagship journal following an international conference on the topic in 1992.

The emergence of language awareness as an educational movement occurred contemporaneously with a heated debate concerning the role of consciousness in second language learning (e.g. Svalberg 2007, 2009; Edmondson 2009; Garret and Cots 2017). Scholars who espouse the movement mostly give a prominent role to explicit knowledge in facilitating learners' second language development, although the role of conscious knowledge was not given much credit by others. The ALA's definition of language awareness clearly emphasizes the significance of conscious, explicit knowledge, but many researchers working in the field of language awareness also recognize the importance of implicit knowledge and understanding, which profoundly mediate language learners' language learning and use.

Since its birth, the field of language awareness has been evolving with diversifying concerns for enquiry. Edmondson (2009: 165) argues that the notion of language awareness in different studies can be used to refer to the following issues: (1) linguistic awareness, explicit L2 knowledge or 'perception of and acquaintance with different aspects of the . . . language . . . as a system'; (2) cultural awareness in language learning; and (3) language learning. Edmondson's (2009) emphasis on explicit L2 knowledge has to do with the traditional focus in the educational movement of language awareness on making language learners become 'more *conscious* of' language and its use in real-life contexts (Nicholas 1991: 78). The language awareness movement also promoted 'conscious reflection on language by students and teachers' so that students' language use and educational outcomes would improve (ibid.).

However, this association between consciousness and awareness has been challenged, as it is quite possible for language learners to become aware of particular features of language use, although they may not be able to explicitly convey such awareness verbally (e.g. Nicholas 1991; van Essen 2008; Edmondson 2009). Nevertheless, it has been argued that conscious noticing may play a critical role in language users' initial awareness of specific linguistic phenomena, even though language users' developed awareness may not be fully reliant on conscious noticing (Edmondson 2009).

In addition, research on language awareness has been conducted in a variety of contexts where language awareness operates. Garret and Cots' (2017) *Routledge Handbook of Language Awareness* categorizes the variety of topics and issues addressed by language awareness researchers into three groups. The first two, which are to do with language teaching, teachers, language learning, and learners, include 20 topics and issues that have been traditionally associated with the 'core' business of language awareness research from its emergence as an educational movement. The third group of studies covers another nine topics and issues that are beyond the discussion of issues related to language pedagogy. These studies explore the increasingly noticeable role of language awareness in situations or contexts, such as multimodal exchanges, sociolinguistic shifts, minority language education, multilingual corporations, and civil politics.

Studies under the category of language teaching and teachers help us to gain insights into the role of language teachers' language awareness in overcoming instructional challenges and developing appropriate practice. These challenges relate to a variety of issues such as student diversity and the adoption of form-focused instruction. They also involve parts of language teachers' regular professional practice, such as reading, writing, and assessment. The relevant studies also enable language teachers to develop an appropriate understanding of teaching when they are engaged in multilingual universities or equip them with an enhanced awareness

of the need to promote English as a lingua franca. In addition, language awareness research has facilitated language teachers' efforts to teach critical literacy and promote language learners' appreciation of creativity in reading literature (e.g. Hall 2017).

The second group of studies focuses on the role of language awareness related to language learners' language learning and use in a variety of contexts, such as study-abroad, multilingual, or collaborative contexts, and social media. Relevant studies have addressed language learners' metalinguistic constructs (e.g. metalinguistic knowledge, metalinguistic reflection), pragmatic knowledge, phonological understanding, and critical language awareness. Both the first and second groups of studies contain research on language learners' and teachers' beliefs (Borg 2017; Kalaja et al. 2017).

Critical issues and topics

As indicated, language awareness research has explored critical issues related to language learners, language learning, language teachers, language teaching, and also critical awareness of language learners and teachers in intercultural, multilingual contexts. This section outlines the engagement with these key issues to reflect the diversity of research topics in the historical and current contexts.

Language awareness, language learners, and learning

A good deal of research has been devoted to examining 'the role of explicit knowledge about language in language learning', reflecting sensitivity to 'the manipulative use of language' (Edmondson 2009: 165). Such explicit knowledge about language may relate to language learners' awareness and knowledge of language use at the phonological, lexico-grammatical, and interactional levels. Hence, early research focused on the development of language learners' awareness from the micro morphological level to the macro discursive level in terms of writing and speaking. These studies have shown how language learners' knowledge facilitates their language use and reflects their language development.

Language awareness studies have proposed a series of concepts related to language learners' explicit knowledge about language, or metalinguistic constructs, which can be used by language learners to discuss the language that they are learning (e.g. Ellis 2004; Jessner 2008; Svalberg 2007, 2009). Metalinguistic constructs include notions such as metalinguistic knowledge, metalinguistic awareness, metalinguistic reflection and activity, metalinguistic ability, and metalanguage. Metalinguistic knowledge, one of the most popular constructs in SLA research, refers to language learners' explicit knowledge about language, which is defined as 'declarative . . . knowledge of the phonological, lexical, grammatical, pragmatic and sociocritical features of an L2 together with the metalanguage for labelling this knowledge' (Ellis 2004: 244–245). Because metalinguistic knowledge is 'explicit and verbalizable' (Hu 2002: 348), the term has been used synonymously with the related term explicit knowledge. A language learner's metalinguistic knowledge is indicative of their language development, and for this reason it can be used to chart their language learning progress.

The construct of metalinguistic awareness is associated with attention and noticing in language learning, but it has also been developed to refer to language learners' 'ability to focus on linguistic form and to switch between form and meaning' (Jessner 2008: 277). Despite efforts to make them different, the construct of metalinguistic awareness is closely associated with the construct of metalinguistic ability since metalinguistic awareness has been defined as 'an individual's ability to focus attention on language as an object in and of itself, to reflect upon

language, and to evaluate it' (Thomas 1988: 531). Metalinguistic awareness has also been measured through the Metalinguistic Ability Test (Woll 2018). In short, these metalinguistic constructs enable researchers to identify whether or not language learners have developed sufficient understanding and knowledge of language for use and how the development of this understanding and knowledge could be further enhanced.

Language awareness studies have explored metalinguistic constructs related to specific aspects of language, including lexico-grammatical awareness, phonological awareness, and pragmatic awareness. Language teachers and learners have long associated language learning success with a good command of vocabulary and grammar, but they also recognize the importance of demonstrating a mastery of the language's sound system so that articulations in the target language are intelligible and cause no significant barrier in communication. This mastery of the language's sound system includes not only language learners' explicit knowledge of the target language's phonological system but also their understanding of the sound system's 'structural properties at the segmental, suprasegmental and phonotactic level' (Mora et al. 2014: 58).

While much of the discussion on language awareness refers to language learners' metalinguistic knowledge as being explicit, Derwing (2017) draws attention to the implicit nature of phonological awareness in language learners' language use. Given the ephemeral nature of speech, it is not surprising to see that language learners are often unable to articulate their phonological knowledge in the same way that they can with their lexico-grammatical understanding, especially when they are explaining how they write and read. Articulating in another language proficiently also involves high-speed processing, which requires much practice, and practice in itself may transform language learners' explicit awareness into implicit understanding. Relevant studies have examined a variety of factors that might contribute to individual language learners' phonological awareness development (e.g. Zarić et al. 2021). These factors are similar to language learner variables that have been explored in terms of individual differences, including language learners' linguistic background, age, exposure, and motivation.

In addition to the traditional focus on language learners' lexico-grammatical awareness, recent studies have investigated language learners' development of pragmatic awareness and knowledge. These studies have confirmed that language learners' learning of pragmatic knowledge is dependent on the noticing of specific pragmatic language inputs by the language learner and the opportunities for the learner to improve their understanding of these inputs (Kasper and Schmidt 1996). Language learners' pragmatic awareness is closely associated with their cultural awareness in language use since understanding of pragmatic markers in the target language enables them to cross cultural boundaries.

Pragmatic awareness and competence constitute one of the most fundamental components of intercultural communicative competence (Byram 1997), and this focus on language learners' pragmatic awareness development fills an important gap in knowledge since most SLA researchers so far have limited understanding of language learners' pragmatic development (Bardovi-Harlig 2017). Although studies on pragmatic awareness are relatively limited in number in comparison with studies on production, the existing studies have explored a variety of issues, including 'speech act identification', 'address form', and 'what learners notice for production in immediately preceding input' (Bardovi-Harlig 2017: 327). These studies have examined what language learners are aware of in target language pragmatics and how different their pragmatic language use is from that in the target language, yielding significant pedagogical implications for language teachers.

Different from language learners' awareness and understanding of language as a system, studies on language learners' beliefs have emerged as a significant component of the language

awareness literature focusing on language learners' understanding and knowledge of language learning and teaching. Language learners' beliefs have been approached from different conceptual and methodological directions. A large number of studies have examined language learners' beliefs as discursive constructions of language learning teaching, and many of them have focused on language learners' metacognitive beliefs about learning and teaching which have regulatory functions in guiding learners' intended efforts (Kalaja et al. 2017). Some studies have regarded language learners' beliefs as psychological properties that can help explain to variations in learning achievements, while others have advanced ecological, contextual, and sociocultural perspectives to investigate how language learners' beliefs dynamically emerge in interaction with contextual conditions in specific sociocultural settings for language learning. All these studies have revealed what language learners believe 'about L2 learning and teaching' as well as 'how beliefs develop and vary in context' (Kalaja et al. 2017: 223).

Language awareness and learning contexts

While the discussion of language learners' awareness of language as a system has also been conducted with reference to cognitive terms such as consciousness, noticing, and attention, studies on language learners' beliefs have adopted a variety of theoretical perspectives that no longer regard beliefs as properties of cognition alone. Instead, contextual mediation has emerged as a major theme in research on language learners' beliefs. For instance, Aro's (2012) analysis of young language learners' narratives in Finland revealed that the participants' voices in language learning initially echoed what they had been encouraged to believe by their parents and wider society. As these language learners progressed in language learning, their own voices in the discursive constructions of language learning become increasingly noticeable, and often challenged what they had been encouraged to believe in. These findings draw attention to the role of contexts in language learners' language awareness development.

The variety of contexts that have been considered when exploring language learners' language awareness development include collaborative learning, plurilingual, study-abroad, and social media contexts. Collaborative learning can be regarded as a traditional concern in language education with the rise of constructivism and communicative language teaching in language education (e.g. Basturkmen and Philp 2017). Collaborative learning and peer interaction have been examined in a good deal of research because of their positive contributions to language learners' language development. In recent years, the rise of sociocultural theory as a perspective on language learning and development has encouraged researchers to explore how language learners interact with each other to identify evidence for language learners' microgenetic language development. Language-related episodes in peer interaction during collaborative learning tasks present important opportunities for language learners to develop their language awareness, which helps them to seize learning opportunities to develop language competence.

The shift from monolingualism to plurilingualism in language education also requires language learners to develop their capacity for using plurilingual resources and responding to multiple languages in the educational process (e.g. Oliveira andAnçã 2017). This means that they need awareness, understanding and the ability to switch across different languages competently or to mobilize all the linguistic resources they have in response to learning and communicative demands in plurilingual contexts. The increasing application of technology has also created new contexts for researchers to examine language learners' language awareness operations and development. Multimodal learning contexts and resources offer language learners a wide variety of opportunities to use the target language, but they also create challenges

for language learners to do with processing multimodal inputs in the learning process (e.g. van Leeuwen 2017). To benefit from such multimodal learning contexts, language learners need to develop an appropriate level of language awareness for processing multimodal input, which will in turn help to transform their language awareness into multimodal awareness.

The same applies to language learners when they engage with mobile communicative technology to communicate with each other through multimodal texts. Language learners' language awareness development in these contexts may be on a different trajectory from that in traditional language classrooms, but these are crucial sites where language learners are exposed to language input and engage with language-related activities. These non-traditional contextual conditions profoundly mediate language learners' awareness development, and language learners also need to develop a new awareness in order to function properly in these contexts.

The recognition of contextual mediation of language use also confirms that we need to 'reassess our knowledge, perspectives, ideas and practices regarding language, culture and communication' (Garret and Cots 2017: 4). Language awareness researchers need to take note of the implications of recent contextual changes for language use and development, such as 'greater cultural reflexivity . . . [and] failing trust in professional . . . authority' (Coupland 2010: 2). Cultural understanding has also been an integral part of language education (Byram 1997), and cultural awareness has been advanced as a crucial component of language awareness (e.g. Edmondson 2009; Garret and Cots 2017). Cultural awareness refers to 'explicit knowledge about elements of L2 culture' (Edmondson 2009: 171), particularly when these elements of culture are closely related to individuals' language use. Intercultural understanding is crucial in facilitating language learners' appropriation of pragmatic knowledge for real-life use. In addition, language learners need to develop critical language awareness since 'language conventions and language practices are invested with power relations and ideological processes' (Fairclough 1992: 7) so that they can learn to challenge existing assumptions and meaningfully participate in a given society's socio-political processes. Such critical language awareness is instrumental in helping language learners and users to uncover hidden ideological assumptions as they are reading or listening, especially in contexts where significant efforts are needed to engage with issues such as racism and social inequality (e.g. Alim 2010).

Language awareness and language teachers

The variety of issues addressed in language awareness research has significant implications for language teachers. Language awareness is seen as foundational to language teachers' assertion of themselves as language professionals (e.g. Andrews 2007; Andrews and Lin 2017). This is not only related to the pedagogical practices that they undertake; learners' enhanced language awareness also becomes a significant goal that language teachers need to achieve in teaching. Understanding of language as a system is a crucial component of language teachers' pedagogical content and subject knowledge since language awareness in relation to the language system (e.g. lexico-grammatical system, phonological system, pragmatic system) should be the focus of language teachers' teaching (e.g. Nicholas 1991; Garret and Cots 2017).

Language teachers need to rely on language learners' existing awareness of the target language and develop their explicit knowledge of the language for future use, through a variety of pedagogical activities such as reading, writing, listening, and speaking (e.g. Nicholas 1991; Finkbeiner and Schluer 2017; Goh 2017). Relevant explicit knowledge about language can include language learners' knowledge of grammatical forms, although there has been an ongoing debate about whether to focus on form or meaning in language teaching. Teachers also raise language learners' critical language awareness through critical literacy activities (e.g. Alim

2010), or they raise their cultural understanding through literature-based pedagogical tasks (Hall 2017). Like learners' language awareness, language teachers' awareness of the language has also been examined in terms of their beliefs about language, language use, and language learning and teaching, which have profound implications for their pedagogical decisions and practice (Borg 2017).

In addition, language teachers' critical awareness of linguistic diversity and their assumption of social responsibility in its defence play a critical role in facilitating their professional practice when teaching language learners from diverse backgrounds (e.g. Ortega 2019). This awareness also ensures that they deliver ethical pedagogical practice and uphold their commitment to social justice. Studies have explored how language teachers developed and refined a variety of pedagogical activities and approaches in order to promote language awareness. As mentioned earlier, language teachers' pedagogical decisions are dependent on their awareness and understanding (Borg 2017), and the design and implementation of relevant pedagogical activities and approaches demonstrate how language teachers operationalize their language awareness in pedagogical practice in specific contexts, such as universities that use English as the medium of instruction and multilingual classrooms.

Language teachers' awareness and understanding of the language also play a significant role in mediating their implementation of language assessment activities, and their pedagogical efforts play a crucial part in facilitating the development of language learners' language awareness. This recognition significantly broadens the scope of language teachers' pedagogical focus, from narrowly defined linguistic knowledge (language as a system) to issues such as intercultural understanding, critical language awareness, and metacognitive understanding of the language learning process. Therefore, these understandings and knowledge constitute the backbone of the knowledge foundation that will allow language teachers to assert their professionalism (e.g. Andrews and Lin 2017).

Current contributions and research

Studies on language awareness have significantly enhanced our understanding of language learners' language development (e.g. their lexico-grammatical, phonological, and pragmatic development) and their development as language learners (e.g. their strategy use and beliefs). Studies have identified how language awareness operates in language teachers' decision-making in teaching and have also revealed how subject teachers deal with language issues when they are expected to teach different subjects in a target language so that language learners can learn the subject and target language together. These studies generate findings with significant implications for developing appropriate pedagogical materials and approaches that can be used by language teachers to further enhance language learners' learning.

One of the most significant contributions of language awareness research lies in the critical lens it provides for us to gauge how language learners have been progressing in terms of their language development, and how relevant findings can be used to inform pedagogical decisions (e.g. Andrews 2007; Svalberg 2007, 2009). Through analyzing language learners' linguistic production in a variety of formats and modalities, language educators may develop a picture of their understanding and knowledge of language as a linguistic system, as well as its actual use in appropriate ways. Analysis of classroom discourses is a common methodological approach to examining and understanding language learners' language awareness; Nicholas (1991) demonstrated how classroom interactions between students and teachers provide critical clues about how much language learners know about the target language. For instance, any communication breakdown speaks to a lack of the relevant language knowledge that is needed

by language learners to ensure smooth interaction. Meanwhile smooth interaction in itself does not guarantee that language learners have sufficient linguistic resources for communication success in the future. As a result, it is important to prompt language learners to think about how and why they used the target language and identify the understanding that they still need to develop. If language learners can be shown to have chosen between different forms of language to identify the most appropriate one, this observation captures their attempts to reflect on language use, a clear indication of language awareness.

Researchers have also attempted to evaluate language learners' awareness at different levels, such as 'performance, cognitive, affective, social, and power' (Garret 2006: 481). These conceptualizations highlight that language awareness does not simply relate to language learners' linguistic development; it also relates to attitudinal shifts, and an appreciation of the social impact that language learning may have on a critical awareness of the operation of powerful societal forces in encouraging individuals to take up particular values, orientations, and understanding.

Research into these different aspects of language awareness may require different methodological tools. For instance, an examination of language learners' attitudes and motivations often necessitates the use of well-developed questionnaire instruments on language learners' awareness in general or when completing specific learning tasks. Qualitative interview-based studies have also been conducted to explore why particular language learners have developed specific attitudinal stances or motivational orientations, as reflected in their actual use of target language (e.g. Pavlenko 2007; Aro 2012). Research on language learners' critical language awareness requires language learners to articulate how much they understand about a particular phrase and prompts researchers to investigate what the circulation of particular phrases reveals about language learners' awareness progression and what needs to be done to facilitate language learners' critical awareness development. Apart from interviews, ethnographic observations and in-depth stimulated recall interviews may be adopted; language learners' awareness at the performance level requires researchers to focus on the use of ethnographic observation, paying particular attention to the linguistic output produced by language learners through classroom discourse analysis.

The findings from such studies constitute a critical knowledge foundation for language teachers to apply in their pedagogical practice. The identified issues that language learners have with respect to particular aspects of language awareness require them to undertake specific pedagogical responses (e.g. Andrews 2007; Hu and Gao 2021; Pun and Gao 2023). For instance, if language learners hold problematic beliefs about language learning, these will need to be engaged with and addressed by language teachers in their teaching. Language learners may be invited to reflect on their beliefs and work out which ones work well and which do not. They will also need to work out the most critical 'why' question. Through such critical engagement, language learners may be facilitated to develop the beliefs they need to maximize their learning achievements.

Apart from addressing learners' belief-related challenges, language teachers can also provide valuable input to help language learners develop their knowledge of language as a linguistic system (e.g. lexico-grammatical, pragmatic, discursive, and phonological aspects). These are the core of the language awareness movement, and of language teachers' professional practice. Language awareness associated with language learner development is not confined to linguistic knowledge; it is also associated with language learners' knowledge of multimodalities and other important aspects (e.g. language learning strategies). They are critical for language teachers when preparing for teaching, but they are also useful for subject teachers who use English as the medium of instruction and happen to teach students whose first languages

are not English. Subject teachers' awareness of deploying appropriate pedagogical strategies plays a critical role in helping to develop their teaching in response to their students' learning needs (Hu and Gao 2021; Pun and Gao 2023).

The conceptualization of language awareness in terms of different aspects (Garret 2006) is also particularly important for the development of appropriate assessment tools to measure language learners' language development. High-stakes examinations often evaluate language learners' explicit knowledge about language, and they may also attempt to capture language learners' understanding of language in use, their critical language awareness, and their cultural awareness.

Relevant findings on language learners' language awareness are instrumental in helping us to understand their development and adopt appropriate pedagogical strategies, but they may also be used to inform the development of teaching materials (e.g. textbooks) (Andrews and Lin 2017; Sifakis 2019). The progression of language learners' development in terms of their explicit knowledge of language as a linguistic system has profoundly influenced the evolution of language textbooks, which often cover different aspects of language awareness to ensure that input is provided to facilitate language awareness development for actual use in real-life situations. Pedagogical materials often contain tasks encouraging language learners to reflect on their language learning attitudes, their motivations, or their particular knowledge of language. They also prompt language and subject teachers to be aware of the linguistic and cultural challenges that their students may encounter in processing the teaching input. To facilitate students' learning, language and subject teachers are supported by pedagogical tasks that are included in published materials and textbooks.

Other studies have examined the development of pedagogical materials that encourage language learners to undertake critical reflection, develop their understanding of language learning strategies, and improve their critical intercultural understanding (e.g. Karagiannaki and Stamou 2018). Multimodal texts are increasingly prevalent in real-life and pedagogical contexts, and pedagogical materials have been developed to address the need for language learners to acquire competence and skills in dealing with such texts (e.g. Shin et al. 2020).

While this development of pedagogical materials has been certainly informed by language awareness research, it is also important to note that materials alone will not be enough to develop the skills, knowledge, and understanding that language learners will need if they are to use the target language effectively in real-life situations. The effectiveness of pedagogical materials is dependent on language teachers' understanding and knowledge of language and language use, as well as their use of this understanding and knowledge to inform their pedagogical decisions.

Because the core business of language awareness research is to inform language teachers' pedagogical practice and support language learners' language learning, it comes as no surprise that most of the studies in this area have explicit pedagogical implications and relevance (e.g. Andrews 2007; Svalberg 2007, 2009; Garret and Cots 2017). Findings from language awareness research draw language teachers' attention to where and what to focus on in designing and implementing pedagogical activities. For instance, an awareness of the need for language learners to develop genre knowledge for composing appropriate texts in specific disciplines is foundational to the efforts of teachers of English for academic purposes, who need to plan meaningful lessons for preparatory courses for academic studies in the medium of English.

These implications will also help language teachers to manage the learning process. A good awareness of language learners' attitudes and motivation will help language teachers to design appropriate prompts to motivate and sustain language learners' engagement with learning content (e.g. Kalaja et al. 2017). Language teachers' knowledge of classroom discourses will help

them to become much more sensitive to language learners' communication breakdowns or to moments that provide valuable pedagogical opportunities (e.g. Nicholas 1991).

Studies in the field of corrective feedback have generated significant insights for language teachers in terms of when, how, and what to give as feedback when they are responding to language learners' oral language use or written texts. Empirical results have further motivated language teachers to become much more attentive to language learners' engagement with feedback (i.e. how they respond to and deal with the feedback they receive from language teachers) than to which types of feedback are more effective than others (e.g. Han and Gao 2021). Findings from language awareness studies have also enabled language teachers to make appropriate evaluations of how language learners have been progressing so that they can offer suitable follow-up pedagogical responses to facilitate learning (Figueras 2017).

These findings also support language teachers' endeavours to integrate assessment for learning or develop feedback practices that aim to underpin language learners' forward learning trajectories. As mentioned earlier, language awareness research has generated crucial insights to inform the development and refinement of language assessment tools. Apart from large-scale, high-stakes tests, language teachers are also able to develop tailor-made, context-specific language tests or instruments to measure their students' language development and development as language learners (e.g. their learning strategy motivational profiles).

Recommendations for practice

Language awareness research has made significant contributions in terms of the application of applied linguistics and second language acquisition research in language education. It offers a defining disciplinary foundation for language teachers' professionalism (e.g. Andrews and Lin 2017). In terms of future efforts, however, there are a few areas that may deserve further attention, including research and teaching.

The field of language awareness research has been closely associated with developments in other applied linguistics areas such as second language acquisition, discourse analysis, and contrastive linguistics (e.g. Garret and Cots 2017). It has traditionally focused on language education, but there are increasing efforts to engage with language awareness, especially critical language awareness, beyond the language classroom in contexts, such as the workplace, the media (print and social), and broader social spaces (van Leeuwen 2017). Indeed, the division between in- and out-of-classroom research may no longer be meaningful in the field of language awareness. Language teaching is meant to prepare language learners for the real-life tasks beyond classroom, while the context outside the classroom embodies critical resources that can be used strategically to inform language pedagogy within classroom. The boundary separating the spaces inside and outside the classroom is much more blurred, and it has become increasingly necessary to integrate the two together. Critical insights from language awareness studies dealing with matters outside the classroom will be ever more important for language teachers as they design and develop pedagogical activities that prepare language learners for the world beyond the classroom. Classes in language for specific purposes will be an important example of the need to bring these two strands together in language awareness research.

Language awareness researchers also need to consider the implications of translingual, transmodal language practices for language education. Both researchers and practitioners need to critically reflect on what we mean by language awareness since the kind of awareness needed for translingual and transmodal practices clearly goes beyond an ability in particular languages (e.g. English or Chinese) and should include all the available semiotic resources in different modalities. Research should also take into account these multilingual realities and

should consider adopting the perspective of translanguaging since earlier studies on language awareness could be accused of being influenced by monolingualism (Li 2018). An appreciation of multilingualism will help language awareness researchers to become much more cognizant of the need to address social inequity through language education since not all languages have the same value in the current global sociopolitical climate (Ortega 2019; Gao 2019). It is extremely important for language educators to help language learners to learn their desired languages while also maintain a vibrant connection to their own cultural and linguistic heritage.

Language awareness research may also benefit from theoretical diversification. While earlier studies relied on cognitive theories of language and language development, more recent research has started to draw on areas such as sociocultural theory and critical applied linguistics theories to advance much more sophisticated accounts of language awareness with different components in different contexts (e.g. Hu and Gao 2021). Further efforts should be invested in this direction.

It may be necessary to establish language awareness as a firm disciplinary knowledge foundation in language teacher education programmes. This will help to define language teachers' professionalism; in many senses, language awareness is the most vital area of pedagogical subject content knowledge for language teachers. Language teachers need a solid knowledge and understanding of what consists of the language system, how language learning happens, and how language is used in specific contexts before they can competently design and implement effective pedagogical activities to facilitate language learners' development.

They also need an appropriate level of language awareness to undertake diagnostic assessments of language learners' language development and appreciate what high-stakes examination results mean for them and their practice. Many language teacher education programmes offer courses covering second language acquisition and language pedagogy, but it is becoming ever more vital to offer different courses related to the development of language awareness in preparation for language teachers' professional practice. This means that language teacher certification bodies must consider whether to make it compulsory for language teacher education programmes to include courses related to or drawing significantly on the most up-to-date developments in language awareness research.

Related topics

key concepts in language learning and language education; language teacher education; content and language integrated learning; English medium instruction

Further reading

Alim, H. (2010) 'Critical language awareness', in N. Hornberger and S. McKay (eds.), *Sociolinguistics and Language Education*, Bristol, Blue Ridge Summit: Multilingual Matters, pp. 205–231. https://doi.org/10.21832/9781847692849-010 (Alim focuses on critical language awareness and discusses its implications for language teaching. The chapter presents what it means to be critical and elaborates the implicit ideologies that well-meaning language teachers may have in their discourses. It demonstrates how critical language awareness can be used effectively to promote learning through critical reflection and enquiries for social transformation.)

Andrews, S. (2007) *Teacher Language Awareness*, Cambridge: Cambridge University Press. (In this book, Andrews contends that competent language teachers need to possess an adequate level of teacher language awareness, which consists of 'teachers' knowledge and understanding of the language systems' at its core. The book documents an exploration of L2 teachers' language awareness from a variety of perspectives in specific contexts. It associates teacher language awareness with the professional standards being promoted in the field to facilitate the professionalization of TESOL.)

Garret, P. and Cots, J. M. (2017) *The Routledge Handbook of Language Awareness*, London: Routledge. (The handbook remains a comprehensive, informative overview of the field of language awareness. Readers can find state-of-the-art reviews of key topics in the field and are still able to find directions for future research in the 20 chapters of the first and second sections of the handbook.)

Svalberg, A. M.-L. (2009) 'Engagement with language: Interrogating a construct', *Language Awareness*, 18(3–4): 242–258. https://doi.org/10.1080/09658410903197264. (This article contends that language awareness should be seen not just as a state of conscious awareness or a sensitivity but also as active engagement with language. It works out what engagement with language is, as well as highlighting the cognitive, social, and affective aspects of engagement. It also discusses how engagement with language can be identified and how it relates to key concepts in language education, such as attention, autonomy, and agency.)

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12
Classroom discourse

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Introduction

This chapter provides an overview of the development of classroom discourse research since its inception. The critical issues investigated by researchers at various stages of development are discussed under the theoretical perspectives adopted at the time as the latter is the lens through which issues come to the fore of researchers' focal awareness. Research methodologies adopted at those stages will also be discussed. The discussions in both sections show that increasingly studies have adopted an eclectic approach to theoretical perspectives and research methodologies, drawing on insights from multiple disciplines. This trend has continued in recent contributions and will continue in future developments. The chapter concludes by highlighting the importance of incorporating classroom discourse awareness as an integral component of teacher education programmes.

Historical perspective

Research on classroom discourse began in the early 1950s in teacher education research, motivated by the search for an 'objective' evaluation of classroom teaching for teacher training purposes. The focus was on aspects of teacher behaviour related to learner performance. Tools for systematic classroom observation were proposed. One of the first and most widely adopted tools was Flanders' Interaction Analysis Categories (FIAC) (Flanders 1960). The analysis provides an overall picture of the teaching patterns in a lesson in terms of teacher talk, student talk and the types of student behaviour elicited by teacher behaviours. Despite reservations about the causal relationship between the two, observation instruments based on FIAC proliferated in the 1970s and 1980s.

Studies of L2/FL classroom teaching began in the 1960s, driven by the need to evaluate the effectiveness of the various FL teaching methodologies, with the aim of identifying the 'best' methodology. The inconclusive findings, however, pointed to the problematic nature of the basic tenets of these studies. It was generally agreed that efforts to establish the superiority of one teaching methodology over another represented a simplistic view of classroom teaching processes and were unlikely to yield meaningful results. The aim of classroom-centred

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research, it was argued, should be to provide a detailed account of classroom teaching processes and how they are related to learner achievements. Subsequently, the research focus shifted from prescription to description. This resulted in a proliferation of descriptive tools for classroom observation (see Allwright 1988/1996 for an overview). One could, however, argue that that the intent was still largely prescriptive because the aim was to identify teaching processes that would lead to positive learning outcomes.

Research on L2/FL classroom discourse was also influenced by L1 classroom discourse research that began in the 1960s as part of the *language across the curriculum* movement in Britain. Particularly influential was the work of Barnes (1969) on the types of teacher questions (*open* versus *closed*; *pseudo* versus *genuine*), the types of learner responses elicited, the types of learner-talk (*exploratory* versus *final draft*), and the mental processes reflected in learner-talk. This classification was adopted by a number of studies on L2/FL teachers' questions in the classroom (e.g., Long and Sato 1983).

L2/FL classroom discourse studies conducted in the 1970s and 1980s focused mainly on the observables in the classroom. By the late 1980s and early 1990s, it became clear that studies of the observables needed to be illuminated by the unobservables, including learners' learning styles, psychological states, cultural backgrounds, and beliefs about classroom behaviours (Allwright and Bailey 1991; Tsui 1996). For example, studies of Asian learners' participation in multi-ethnic classrooms show that they are, in general, less willing to volunteer answers and they take fewer turns than their non-Asian counterparts (Johnson 1995).

Recognizing the importance of the unobservables of classroom discourse put into question the adequacy of descriptive tools that are *etic* (non-participant) in perspective and typically do not take context into account. Influenced by the sociocultural turn in educational research in the 1990s, classroom discourse research began to relate micro-level classroom talk to macro-level context. Research methodologies and theoretical frameworks in neighbouring disciplines have been drawn on to illuminate classroom data. This has led to a reconceptualization of the language classroom as a site where historical, socioeconomic, and sociopolitical forces intertwine and moderate the teaching and learning processes. Classroom discourse research is no longer just linguistically and cognitively focused. Rather, issues underlying classroom processes that impact on student learning in profound ways take centre stage in classroom discourse research.

This brief review of the history of classroom discourse research shows that it has moved from a relatively simplistic and reductionist view of classroom processes to a more holistic understanding of these processes as constitutive of the larger society. Accordingly, it has moved from decontextualized micro-level etic analyses to an integration of micro and macro levels from both etic and emic perspectives, drawing on theoretical frameworks and research methodologies from multiple disciplines. This has led to a much more sophisticated understanding of the complexities of classroom discourses and the learning processes.

Theoretical perspectives, critical issues, and topics

In this section, critical issues of classroom discourse research will be discussed in light of the theoretical perspectives that have impacted on the studies. The discussion will focus on two major theoretical perspectives that have shaped the research agenda and the critical issues that have been interrogated: information processing perspectives of learning which dominated earlier studies and sociocultural perspectives which have been highly influential in more recent studies.

Information-processing perspective

Much of the early research on classroom discourse was guided by an information-processing theory of learning based on an input-output model that perceives learning as a cognitive process that takes place inside the head of the individual (see Ortega, this volume). The majority of the studies focused on the analysis of language input, interaction, and language output from an etic perspective, and a minimalist approach was adopted with regard to the role of context.

Comprehensible input and modified speech

Motivated by the belief in a causal relationship between input and output, one of the research foci was teachers' language input. Influenced by Krashen's comprehensible input hypothesis (Krashen 1977), a number of studies focused on teachers modified linguistic input for learner comprehension. Subsequent studies, however, found that it was the linguistic modifications made by teachers *in light of* learners' responses that facilitated language learning. The research focus, therefore, shifted to the study of linguistic modification devices, such as confirmation, clarification, and comprehension checks. A major problem with the study of comprehensible input was its etic perspective: what the teacher or researcher considered to be comprehensible may not be so for the learner (see Gass 2015).

Teacher questions and feedback

Two other aspects of language input considered critical to learning were teachers' questions and their feedback on learners' responses. Drawing on L1 classroom research, detailed analyses were conducted on different types of questions in light of the responses elicited. *Referential* questions were found to elicit linguistically more complex responses than *display* questions (Long and Sato 1983). The investigation of what constitutes effective feedback for learning has led to a reconceptualization of teacher feedback from evaluative to facilitative. The latter provides information for learners to confirm or disconfirm their hypotheses about the target language, referred to as corrective feedback (CF) (Chaudron 1977). More recent research compared the relative efficacy of different types of feedback, varying on a continuum of explicitness in error correction, including reformulation, recasts, and prompts. Inconclusive findings have led to the investigation of a range of cognitive, linguistic, and contextual variables that could moderate CF effectiveness (see Lyster 2015 for a review of these studies).

Language output and interaction

The lack of evidence that comprehensible input actually produces higher-quality learner output has led to a shift in focus from teachers' comprehensible input to learners' language output. The *output hypothesis*, proposed by Swain (1985), states that pushing learners to produce comprehensible and grammatically accurate output is equally, if not more, important for language acquisition. Furthermore, learners' attention to linguistic form is enhanced in the process of negotiation of meaning when communication or task completion fails. Motivated by *interaction hypothesis* (Long 1996), a number of studies focused on the processes of interaction and their impact on learning. Early studies pertained largely to features of NS-learner interactions, and comparisons of this dyad with learner-learner dyad. Findings converged on the similarities between these two dyad types: (1) the presence of comprehensible input and (2) negotiation of

meaning and modified output. More recent studies, however, have questioned whether similar interactional features necessarily lead to similar learning outcomes. Further comparisons of expert-novice learner interactions have been inconclusive, suggesting that peer interactions are highly complex, with a number of factors interacting dynamically to shape the interactive processes and the learning outcomes (see Mackey 2012).

The search for factors impinging on language output has also turned to opportunities for output made available to the learner. Early studies included learners' turn-taking behaviours and how they affected opportunities for participation. Subsequent studies took into consideration factors which impinge on learners' interactional behaviour, such as cultural background, learning arrangements (such as teacher-fronted versus pair or group work), and task types (see Crookes and Gass 1993). More recent studies have examined individual learners' conscious 'noticing' of the input and feedback available, referred to as *Noticing Hypothesis* (Schmidt 1990). Various means of gathering evidence for the occurrence of 'noticing' have been used, such as stimulated recall, diary studies and, more recently, technology enabled eye-tracking tools (see Gass 2015 for a summary of studies). However, the vexed question of how learner's 'noticing' can be ascertained has yet to be addressed satisfactorily.

The preceding discussion shows that early classroom discourse studies, guided by an information processing theory of learning, were largely confined to the interactive processes within the physical confines of the classroom. They were linguistically and cognitively focused, with an emphasis on the impact on learning outcomes. Inconclusive findings in a number of studies have pointed to the need to widen the scope of investigation to include contextual variables and the interactions amongst these variables. Sociocultural theories of learning has provided an alternative paradigm for classroom discourse research.

Sociocultural perspective

The shift in the research paradigm in general education, in the 1990s, from information processing to sociocultural theory of learning, originating from the writings of L. S. Vygotsky, began to make an impact on L2 research. This shift has led to a different understanding of the relationship between language, context, and learning. Sociocultural theory (SCT) of learning conceptualizes the relationship between the learner and the social world as dynamic and mediated by cultural artefacts, among which language is primary. The learners, the teacher, and the sociocultural contexts in which the participatory discourses take place are constitutive of what is being learned (see Lantolf 2000; Thorne and Tasker, this volume). Seen from this perspective, classroom discourse studies based on the input-output model represent an impoverished and reductionist view of L2 learning.

Zone of proximal development (ZDP) and scaffolding

Since the 1990s, classroom discourse has been reconceptualized as a major semiotic resource that mediates learning in the classroom. Similarly, curriculum materials and pedagogical activities and tasks have been understood as semiotic resources rather than ways of packaging target language input. Key concepts in SCT have been drawn on as interpretive frameworks, including the Vygotskian concepts of zone of proximal development (ZPD), mediated learning, and the notion of scaffolding proposed by Bruner (1983). For example, drawing on the concept of ZDP, studies on CF (corrective feedback) have pointed out that scaffolding facilitates learning only if the teacher is sensitive to the learners' level of linguistic competence and the specific features of their interlanguage. Hence, a continuous assessment of learners' emerging linguistic abilities in their ZDP is necessary in order for teachers to tailor their support to help learners to

move towards greater self-regulation in using the target language (Lantolf and Poehner 2014). Adopting the notion of *mediated learning*, Swain (2000) extends the notion of *output* as external speech. She argues that external speech in collaborative dialogues is a powerful mediational tool for language learning because it not only encourages learners to reflect on what is said in language-related episodes (LRE) while still being oriented to making meaning, but also helps learners to monitor their own language use, to notice the gaps in their interlanguage, and to set goals for themselves (see also Swain 2005).

Mediated learning, tasks, and activity theory

Developed on the basis of Vygotsky's conception of mediated action as a unit of analysis for understanding human mental processes, activity theory maintains that goal-oriented human action is part of a larger activity and is shaped by the broader sociocultural system in which the activity is situated (Leont'ev 1978). The individual's participation in these activities is mediated by the cultural tools he/she has appropriated. In the course of the interaction, the cultural tools, the nature of the activity, and the modes of participation are transformed. The same activity may be realized by different actions mediated by different tools; conversely, the same action may be driven by different motives, hence realizing different activities (Engeström 1999). According to this perspective, the same learning task may be operationalized as different learning activities with different goal-oriented actions by different learners and by the same learner in different contexts (see also Thorne and Tasker, this volume). The discourse that emerges in task completion plays an important mediational role in shaping the way learners orient themselves to the task and to each other. Hence, it is the agency of learners, in terms of the way they orient themselves to the task, not the task *per se*, that determines the way the task will be performed and the learning that will take place. Donato (2000) observes that tasks should therefore be understood as 'emergent interactions' and not as the packaging of language input. This theoretical lens throws a very different light on task-based learning and has been drawn on by a number of studies (see e.g., studies collected in Lantolf and Appel 1994; see also Lantolf and Thorne 2006).

Linguistic affordances and learning

Also working within the sociocultural paradigm, classroom researchers have adopted an ecological perspective of language learning which investigates the totality of the relationships between the learner and all other elements or participants in the interactional environment. Van Lier (2000) proposes *affordance* as an alternative conception of *input*, which is defined as opportunities for meaning-making that are perceived to be relevant and acted upon by learners. Input is therefore not something external to the learner to be acquired but rather the interaction between the learner and the environment. Kramsch (2002) considers an ecological approach to language learning a powerful way of capturing the symbiotic relationship between the language user and the environment (see also van Lier 2004).

Critical perspective

Based on post-structuralist (Foucault 1972) and post-colonialist (Said 1978) perspectives of discourse, critical classroom discourse analysis maintains that analysis of classroom discourse should unravel sociocultural and sociopolitical issues relating to ideology, power, knowledge, class, race, and gender that underlie the interaction processes and student learning (Kumaravadivelu 1999).

Gender, power, identity, ideologies, and inequality

In the recent two decades, there has been an increasing number of studies which has reconceptualized the classroom as sites where discourses relating to gender, power, identity, ideology, and inequality intertwine, and new meanings, power relationships and identities are constructed and resisted as participants interact. For example, Duff (2002) unravels the co-construction of cultural identity in classrooms where learners were linguistically and socioculturally heterogeneous. Menard-Warwick (2008) uncovers the issue of gender and social positioning in an ESL course for adult immigrants. The analysis of the interactional structures reveals the tension between the identities that the female immigrant learners claimed for themselves as competent members of the community and the gendered social identities that were assigned to them by their teacher. Miller (2015) examines how resistance and power is locally managed in the moment-by-moment interaction in the classroom and uncovers the power relationship, identities, and ideologies that underlie what appears to be collaborative behaviours of the learners. (See studies collected in Jenks 2020 and Markee 2015).

Multilingual classrooms as sites for critical enquiry

Discourses relating to these sociocultural and sociopolitical issues are particularly palpable in multilingual classrooms which are immensely rich sites for investigating the social and cultural (re)production processes and the relationship between micro classroom and macro institutional processes. A number of researchers have studied code-switching in multilingual classrooms as a resistance to language policies which privilege one language over others, notably the supremacy of English as the only legitimate language that can be used in the classroom (see Martin-Jones 2015 for a review of studies). More recent critical classroom discourse studies of multilingual classrooms have investigated translanguaging pedagogy as a means of challenging monoglossic ideologies and redressing educational and social inequalities by providing learners with access to full participation in learning through using diverse meaning-making resources (see Li and Lin 2019 for recent studies).

Recent contributions and research

Positioning theory

Among studies adopting a critical perspective, an increasing number of studies have adopted positioning theory (Davies and Harré 1990) as an analytical lens to investigate the dynamic interactions in classrooms. Position, as defined by Harré (2012), refers to 'a cluster of beliefs with respect to the rights and duties of the members of a group of people to act in certain ways' (p. 6), often in relation to larger social structures. Positioning theory maintains that not everyone has equal access to these rights and duties in a social episode; therefore, the positions that people assign to themselves (reflexive positioning) and to others (interactive positioning) in discursive processes can either provide or preclude access to rights and obligations to say certain things or to act in certain ways. Studies adopting this theoretical lens have explored the impact of both learner and teacher positioning. Learner positioning studies, including peer positioning, pertain mostly to identity, gender, ethnicity, and power relationship, and how they shape opportunities for learning. Teacher positioning studies mostly relate

to how teachers' positioning shapes their instructional decisions, which in turn impact on learners' identity construction, participation, and learning. They are often conducted from an etic perspective. Studies conducted from an emic perspective is relatively rare. Yet teachers' awareness of how their own positioning impacts on learners and learning is very important (see Kayi-Aydar and Miller 2018 for a state-of-the-art review of studies on positioning theory in classroom discourse).

Complexity theory

Complexity theory, originating from the physical sciences, was introduced into applied linguistics in the late 1990s (see Larsen-Freeman and Cameron 2008; van Lier 2004). Complex systems are characterized by the non-linear dynamic interactions of a multitude of elements, giving rise to the emergence of new and often unpredictable behaviours, interactions, and structures at the system level. Hence, what appears to be insignificant differences in interaction can lead to very different learning outcomes. The characterization of classrooms as complex systems puts into question models of learning based on a linear input-output cause-and-effect relationship and investigations of classroom discourse elements independent of the system of which they are a part. While there are a number of discussions of the relevance of complexity theory to classroom studies, the application of complexity theory to the analysis classroom discourse data is more recent and is still scanty (e.g. Seedhouse 2015; Tsui and Imafuku 2020). Seedhouse (2015) shows how classroom interactions exhibit the characteristics of adaptive systems. Tsui and Imafuku (2020) shows the non-linear trajectories of learners' contributions to problem-based tutorials over time and how these trajectories exhibit a complex interplay between the learners' self-perceptions, identities, and cultures and their peers' perceptions and reactions. These studies suggest that complexity theory is a powerful lens for uncovering the complexities of classroom discourse.

Multimodal research

The emergence of multimodal analyses of classroom interaction is a rather recent phenomenon, especially in applied linguistics (Markee 2015). Until recently, most of the classroom discourse studies have focused on verbal interactions in the classroom. While language is the primary semiotic resource in classroom, research in social semiotics has pointed out that semiotic resources other than language can be harnessed and deployed by participants in interactions to define social orders and power relationships (Kress 2010). For example, studies have drawn attention to the often-neglected non-linguistic resources, such as silences, disruptions, laughter, time-out, and prosodic and paralinguistic features of talk, which affect what is taught and what is learnt, and can lead to empowerment or disempowerment of learners. For example, Pinnow and Chval (2015) investigates a young Latino English learner's interactions with his peers and shows how semiotic resources, such as game cards, tone of voice, gestures, and intonation, were used by the learner to position himself as an equal partner in the interaction. Van Compernolle (2015) shows that visual engagement, including eye gaze, posture, and gesture, is an important mediational resource for participating in classroom interaction (see also studies collected in Jewitt and Cowan 2014). The multimodal participation of all parties, with their multiple agendas and roles, will become an increasingly important research agenda with the ubiquity of technology-enabled teaching and learning.

Research methods

Linguistic and cognitive approach

Early classroom discourse data analyses focused on linguistic features and speech functions of classroom talk and student learning. A number of descriptive systems drew on Bellack et al.'s (1966) conception of classroom interaction as constituted by a finite set of pedagogical *moves*: structuring, soliciting, responding, and reacting. One of most influential descriptive systems was that proposed by Sinclair and Coulthard (1975), which was a prototype model of the grammar of spoken discourse. Building on the concept of 'move' as a discourse unit, they proposed that discourse units – *acts*, *moves*, *exchanges*, and *transactions* – are organized in a hierarchical manner. The basic unit of organization in classroom discourse is the *exchange*, which consists of *initiating*, *responding*, and *follow-up moves* (IRF), the moves being determined by their functions in the discourse. Although this descriptive system was linguistically rather than educationally motivated, it has been widely adapted for the analysis of classroom discourse (see also Mehan 1979).

Descriptive or analytical tools adopting this approach are typically designed with predetermined structural and functional categories defined linguistically or pedagogically, drawing on speech act theory (Austin 1961) and linguistic analysis of spoken discourse. Early tools aimed to provide a comprehensive description of interactions in an entire lesson. Subsequent descriptions focused on specific discourse categories of pedagogical significance, such as types of teacher questions and feedback. In most cases, amendments would be made to the chosen tool in light of the data gathered. However, usually the researcher already has preconceptions about the nature of the data and what categories would be relevant for analysis. Adopting an *etic* perspective, the researcher has supremacy over the interpretation of data. The analytic focus is on observable behaviours in the classroom, mainly classroom talk. This approach, with explicitly defined linguistic features, has the advantage of replicability. However, its limitation is that it is not able to account for the unobservables in the classroom. There is also a tendency to impose the researcher's preconceptions on the data rather than allow the data to inform research.

Ethnographic approach

The sociocultural turn in classroom discourse research has led to the wide adoption of ethnographic approach. The characteristic form of ethnographic research involves the researcher participating, overtly or covertly, in people's lives for an extended period of time, 'watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research' (Hammersley and Atkinson 1995: 1). However, as it is not always practicable to be a participant researcher, most classroom research aims to obtain an *emic* perspective on classroom processes through the collection of a variety of qualitative data, such as lesson plans, teachers' and learners' journals, interviews, and stimulated recalls conducted with teachers and learners. Data are also collected on the wider educational and sociopolitical contexts that are relevant to the research focus, including educational policy, school curriculum, the socioeconomic background of learners, and school culture. In addition to discourse data inside the classroom, critical approaches to classroom discourse also gather data in social spaces beyond the classroom, such as staff rooms, meeting rooms, playgrounds, and also other relevant institutional settings.

Conversational analysis approach

In response to the inadequacy of a linguistic approach to uncover the complexities of the emergent discourse in the classroom, a number of socioculturally oriented classroom discourse studies has adopted conversational analysis (CA) as the analytical tool. CA, originating from ethnomethodology, studies the organization of talk-in-interaction in natural settings from the perspective of how talk is oriented to, managed and accomplished by participants, as manifested in their talk (Schegloff and Sacks 1973). In other words, the analysis is *emic* in orientation. Naturally occurring talk-in-interaction, which encompasses casual conversation and institutional talk, such as talk in classrooms, courtrooms, and clinics, is subjected to fine-grained analysis of verbal and non-verbal elements, as social actions that are oriented to and managed by participants (Schegloff 1992). Conversational features such as turn-taking, repairs, and sequential organizations, such as adjacency pairs and preference organizations, have been widely adopted in classroom discourse analyses. Different from ethnographic approaches, aspects of context, such as gender, race, and power, will be included *only if* they are demonstrated *in participants' talk* to be relevant. The rigorous and fine-grained analysis of classroom talk has unveiled subtle interactional practices of significance to learners as well as to the teacher. For example, Seedhouse's analyses (2004) show that similar to contexts in conversation, contexts in the classroom are fluid and mutually constructed by participants in the moment-to-moment development of the discourse throughout the whole lesson (see also Markee 2008). Based on data from different L2 classroom contexts, Seedhouse further demonstrates how the CA approach illuminates reflexivity of the interactional organization of classroom discourse, as managed by participants, and the pedagogical focus (see Richards and Seedhouse 2005 for studies adopting the CA approach).

The application of CA to classroom data analysis has not been uncontroversial. On the one hand, orthodox conversational analysts question the macro analysis of data as an imposition on the participants, and hence goes against the grain of CA, and is positivistic and etic in perspective. Classroom ethnographers, on the other hand, criticize CA analysts for a decontextualized approach to data analysis, as the impact of macro issues on the participant, which comes through in ethnographic data, is not always evident in the talk-in-interaction. (For a discussion of the context sensitivity of CA when applied to CD analysis, see Markee and Kunitz 2015).

Future directions: crossing and blurring boundaries

Classroom discourse research has made significant progress in illuminating our understanding of the complex interplay between factors that impinge on what appears to be simple classroom interchanges. Earlier research placed classroom discourse data at the centre of inquiry and studies were typically 'data-heavy but theory-light' (Donato 2004: 299). However, the last two decades have seen more studies that are theoretically motivated, crossing theoretical, disciplinary, and methodological boundaries. For example, Lantolf (2000) brings together studies drawing on the work of Vygotsky and Bakhtin, social philosophers such as Bourdieu and Habermas, cognitive psychologists such as Rommeveit, and psychologists such as Gibson, Bateson, and Bronfrenbrenner. Young (2009) adopts analytic tools from systemic functional linguistics, social theory of learning, and ethnomethodology to analyse discursive practices of learners and instructors. Phenomenography, a research approach in education that studies the qualitatively different ways individuals experience a phenomenon in the world, has been drawn on for classroom discourse studies in content and language classrooms (Marton and Tsui 2004). Social theory of learning, which places participation in communities of practice as central

to learning and identity formation (Wenger 1998), has been adopted to elucidate classroom interaction processes. In particular, the conception of the process of learning as moving from peripheral to full participation as a competent members of a community of practice has shed new light on learning in collaborative work (Donato 2004; see also Young and Miller 2004; Norton and Shank Lauwo, this *Handbook*, Volume 2). Nevertheless, there is need for still more studies adopting a pluralistic approach and involving interdisciplinary collaboration amongst scholars (see studies collected in Markee 2015). The complexity of classroom discourse also necessitates a greater tolerance of methodological diversity.

A deeper understanding of classroom discourse processes as situated in its sociohistorical context typically involves data collection from different sources over a period of time. To date, most studies on classroom discourse are snapshots ranging from a single lesson to a few lessons. This kind of study does not allow time for the complex interactions amongst variables impinging on learning processes and outcomes to emerge, resulting in misleading conclusions being drawn. Hence, longitudinal studies are much needed in classroom discourse research (Markee 2015; Tsui and Imafuku 2020). However, the word limit of a journal paper often precludes a full account of the research processes and data analyses (Zuengler and Mori 2002), and the abbreviated report presented often fails to do justice to the complex research processes. With the growing availability of e-versions of academic journals, access to fuller reports of studies with the accompanying data would greatly enhance the research quality.

The ubiquity of technology-enabled teaching and learning on a global scale, spurred by the COVID-19 pandemic, has changed classroom processes in fundamental ways. There is an urgent need to embrace online communication as an indispensable part of classroom discourse research and to redefine classroom boundaries. The challenge of conducting multimodal analysis cannot be underestimated, however (see Jewitt and Cowan 2014). One obvious challenge pertains to methodological issues in data transcription and analysis. For example, Cowan's (2014) study of young children's interactions when engaging with a computer shows that different multimodal transcriptions of the same interaction segment are shaped by the modes to which the researchers attend, which in turn shapes the interpretation of the interactions. Most challenging of all is researching classroom communication and learning in a rapidly changing multimodal digital learning environment. Technology-enabled virtual 'classrooms' where synchronous and asynchronous discourses take place and simultaneous dual-mode (physical and virtual) teaching which may typify the new normal will impact on classroom processes and student learning in ways that we have yet to fathom. Classroom discourse studies that do not take into account technology-enabled multimodality are necessarily impoverished.

Recommendations for practice

Raising teacher's awareness of the language that they use, the discourse that they co-construct with learners, the mediating semiotic resources, and how they impact on students' learning, identities and emotions should be a central goal of classroom discourse research. Classroom discourse should be part of the core curriculum of any teacher preparation and professional development programmes. Teachers engaging in action research should be encouraged to record, watch, and identify discourse segments of critical importance in their own classrooms and guidance should be provided to help them analyze their own classroom discourses. The implementation of strategies to address the issues that have emerged from their analyses should be recorded and further analyzed for comparison – this is a step that is often missing in reflective practice. Walsh (2013) provides practical suggestions for teachers to conduct analyses of their own classroom discourses.

Scholars of classroom discourse research have called upon researchers to conduct research not *on* teacher but *with* teachers. This is particularly relevant to raising teachers' awareness of how their lived experiences of classroom events shape their conceptions of teaching and learning, their ideologies and identities, and how, in the process of interacting with their students, they construct their own identities. This can also raise their awareness of the importance of listening to students' voices and how students' reconstruction of their L2 identities can be supported.

Related topics

conversational analysis; complexity theory; institutional discourse; identity; multimodality; sociocultural theory; second language acquisition

Further reading

Lantolf, J. T., Poehner, M. with Swain, M. (2018) *The Routledge Handbook of Sociocultural Theory and Second Language Development*, New York and Abingdon: Routledge. (This volume consists of an excellent introduction which provides an accessible explication of sociocultural theory and its essential concepts and a collection of up-to-date studies on second language acquisition with some studies involving in-classroom discourse analysis.)

Markee, N. (ed.) (2015) *The Handbook of Classroom Discourse and Interaction*, Oxford: Wiley. (This volume collects a number of excellent recent studies from a range of research traditions. Each section is preceded by a helpful introduction from the editor which signposts the ensuing discussion.)

Seedhouse, P. (2004) *The Interactional Architecture of Second Language Classroom: A Conversational Analysis Perspective*, Oxford: Blackwell. (This volume draws heavily on the methodological tools of ethnomethodology in the analysis of the organization of classroom discourse in relation to pedagogical focus across a range of L2 classrooms. It serves as a good reference for those interested in adopting CA for analysis.)

Walsh, S. (2013) *Classroom Discourse and Teacher Development*, Edinburgh: Edinburgh University Press. (This volume provides an accessible discussion of important aspects of classroom discourse which are important to both researchers and practitioners. It provides practical suggestions for engaging teachers in classroom discourse research for teacher development purposes.)

Young, R. (2009) *Discursive Practice in Language Learning and Teaching*, Malden, MA, and Oxford: Wiley-Blackwell. (The volume draws on ethnomethodology, social theory of learning as participation, and systemic linguistics in the elucidation of a discourse inside and outside the classroom. It provides a good example of an eclectic research approach to classroom discourse analysis.)

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13

Language and culture

Claire Kramsch

Historical perspectives

Until the 1970s: separate areas of inquiry

Language and culture have not been seen by everyone as inseparable as they might be seen today by an applied linguist. Indeed, the study of language was since its inception the domain of linguists, not anthropologists, and language teaching was about the teaching of linguistic forms, not foreign cultures. The foundation of the English Language Institute at the University of Michigan in 1941 and of the School of Applied Linguistics at the University of Edinburgh in 1957 are generally seen as the beginning of the field of applied linguistics. At that time, the study of language was distinct from the study of both literature ('big C' Culture) and anthropology ('little c' culture). On the one hand, linguists and grammarians, following the path set by Saussure, studied language as a closed system of signs shared by all members of a community of ideal native speakers. On the other hand, cultural anthropologists like Levi Strauss studied culture as a closed system of relational structures shared by homogeneous social groups in exotic primitive societies. Oddly enough, the legacy of scholars who were both anthropologists and linguists like Wilhelm von Humboldt, Bronislaw Malinowski, Edward Sapir, and Benjamin Whorf did not initially influence the emerging field of applied linguistics. For example, even though attention was paid early on to the social context of second language acquisition (SLA) and to acculturation factors in SLA, the Sapir-Whorf hypothesis, which posited the constructivist relation of language and thought and the mutual dependency of linguistic forms and cultural worldviews (for a review, see Kramsch 2004), was not taken seriously among psycholinguists, many of whom had studied under Noam Chomsky (for a critique of Sapir-Whorf, see Pinker 1994, ch. 3).

Culture was to make its way into applied linguistics through the study of language as discourse. The fact that applied linguistics was an applied science confronted its researchers with the need to take into account the social and historical context of language use. Culture was another name for context – that is, the constraints imposed on individual language users by the forces of tradition, convention, fashion, and ideology. Culture in applied linguistics came to mean 'membership in a discourse community that shares a common social space and history,

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and common imaginings' (Kramsch 1998: 10). Such a membership had to be seen as heterogeneous, often contested, and subject to change, even in seemingly homogeneous societies. Thus, beyond the standard linguistic system, culture made it necessary to study linguistic and stylistic variation, socially and historically situated discourse communities, different ways of exercising symbolic power and of struggling for cultural recognition and legitimation.

Because applied linguistics emerged at a time of national ideologies and ethnic consciousness, culture was at first essentialized as the patrimony of national or ethnic groups. In the early 20th century, the structure of language as a symbolic system (Saussure) had been mapped on the structure of culture as the principle of organization of primitive societies (Levi-Strauss). After WWII, applied linguists tended at first to equate one standard national linguistic system and one national culture. Nowadays, with the global spread of information technologies and global migrations, culture has lost much of its national moorings. It lives in the communicative practices of native and non-native speakers. In the teaching of foreign languages, and even more so in the teaching of English as an international language, culture has become the contextual foil of language practices in everyday life.

1970s–1990s: 'little c' culture of everyday life enters the communicative picture

The study of language in its social context (Giglioli 1972) brought to the fore a vigorous interest in the cultural component of language study, based on a variety of research domains that had to do with the 'little c' culture of language use in everyday life: discourse and conversation analysis, cross-cultural pragmatics, intercultural communication and intercultural learning, and digital communication technologies.

Discourse analysis was hailed in the 1970s as the golden road to understanding language in use. Culture was to be found not in institutional monuments and artefacts nor in artistic products but in the meaning that speakers and listeners, writers, and readers gave them through the discourse of verbal exchanges, newspaper articles, or political speeches. To understand culture, one had to understand both the universal and the culture-specific constraints on language use in discourse: for example, how social actors initiate and end conversations, how they manage or avoid topics, how they structure an argument and organize information, how they negotiate meaning, and how they relate text to context (e.g. Gumperz 1982; Scollon and Scollon 1995; Widdowson 2007).

The field of conversation analysis (CA) emerged in the 1970s from the work of ethnomethodologist Harold Garfinkel and sociologist Erving Goffman. It attracted scholars like Emanuel Schegloff, who, having moved from literary studies at Harvard to sociology at UC Berkeley in the late 1960s, were searching for the very site of construction of the social world. Sacks, Schegloff, and Jefferson found it in the systematics of turn-taking in daily conversations (Sacks et al. 1974). Their detailed analysis of the mechanics of turn-at-talk opened up vistas on how culture gets produced and reproduced through language (Moerman 1988) – that is, as in Elinor Ochs' phrase, how one 'becomes a speaker of culture' (Ochs 2002).

Another related field that studies culture in action is pragmatics, especially cross-cultural pragmatics. Cross-cultural pragmatics studies the realization of speech acts like requests and apologies in different cultural contexts (Blum-Kulka et al. 1989), as well as the cultural variations of the Gricean cooperative principle in conversation (Matsumoto 1989) and of politeness strategies (Lakoff 1990). This field of research studies the exchanges between interlocutors from various cultural backgrounds, mostly in professional or institutional contexts, very often with unequal speaking rights. It has helped professionals in the legal, medical, or service

industry deal with the pitfalls of communication across cultural and national contexts. It has helped foreign language teachers design authentic communicative tasks and activities in preparation for using language in real contexts of everyday life (see essential readings in Kiesling and Paulston 2005). Cross-cultural pragmatics is of renewed interest today through the work of such sociolinguists as Naoko Taguchi (2021) and the new cross disciplinary journal *Contrastive Pragmatics* (Ajmer et al. 2020).

Cross-cultural discourse studies have benefited from research done in cognitive semantics and specifically the exploration of semantic universals across different languages (Wierzbicka 1992). Since the 1980s, cognitive linguistics has helped us understand how culture relies on shared idealized cognitive models of reality and conceptual metaphors that enable members of a cultural community to make sense of the world around them (Lakoff 1987). This branch of research has enabled anthropological linguists who research language ideology to explain what is commonly called 'cultural beliefs, attitudes, and values' in discursive and cognitive terms (see e.g. Schieffelin et al. 1998).

While intercultural communication (IC) has become since the 1980s a broad field of research based in communication studies (see Zhu Hua 2011; Sharifian and Jaramani 2013), in applied linguistics it is related mostly to language education and professional language use. In language education, the concept of intercultural competence was defined in Europe by Byram and Zarate (1997) on the basis of research in cultural studies and cultural anthropology. It has been elaborated as intercultural communicative competence (ICC) by Michael Byram (1997/2021) and the many scholars he has inspired, such as Risager (2007) and Byram et al. (2020).

The field of intercultural education manifests itself differently in Europe and in the US. In Europe, two strands of intercultural education are noteworthy. In the 1990s, a German strand of applied linguistics (*Sprachlehr- und -lernforschung*) focused on interpreting the culturally foreign Other. This strand of research on the intercultural was the work of German and Austrian scholars in educational linguistics. It was associated with literature scholars like Lothar Bredella and Werner Delanoy (Bredella and Delanoy 1999) and applied linguists like Christine Schwerdtfeger (see Duxa and Schmenk 2005). Drawing on phenomenological and hermeneutic strands of European continental philosophy, it dealt with the cultural identity of language learners, cultural stereotypes, and the dialectic of Self and Other. It considered its goals as promoting tolerance, empathy, personal transformation, and cross-cultural understanding.

Intercultural learning has been a second strand of research developed in continental Europe through the work of such educational researchers as Ingrid Gogolin (1994), Adelheid Hu (1999), Barbara Schmenk (2004), and Jörg Roche (2001) in Germany; Karen Risager (2007) in Denmark; and Hans-Jürgen Krumm in Austria (see Barkowski and Faistauer 2002). It is represented in the electronic journal *Zeitschrift für interkulturellen Fremdsprachenunterricht*, edited by Britta Hufeisen and Manfred Prokop (Lorey et al. 2007). The adjective 'intercultural' has been applied to competences, speakers, learning, pedagogy, and stances. Coupled with 'communicative', as in 'intercultural communicative pedagogy', it definitely aims at facilitating concrete practical encounters within the EU and at improving professional cooperation across European borders. The enormous success of Byram's model of ICC is partly due to the fact that the Common European Framework of Reference has now incorporated elements of ICC into its criteria for assessing the communicative proficiency of language learners (Council of Europe 2018 a and b).

At the end of the 1990s, the growth of computer technology changed our ability to communicate across cultures. Through hypermedia and multimodal technology, it facilitated access to the visual and verbal culture of distant others. Telecollaboration encouraged verbal exchanges across social and cultural contexts. However, while the focus on discourse in the

1980s coincided with a constructivist view of culture as historically contingent and relative to one's perspective on events, and was steering the field in post-structuralist directions, the binary structure of the computer and its use as a procedural tool for the transmission of information encouraged a structuralist approach to developing and testing intercultural communicative competence based on objective, measurable criteria.

Indeed, there has been a noticeable tension between interest in culture as product and culture as process, between structuralist and constructivist views of language and culture (see Street 1993). Is language a reflection/representation of culture, or does language in discourse actually construct what we call culture? As the Scollons describe in the second edition of their best-seller *Intercultural Communication* (1995/2012), they originally had in mind to write a book about interdiscursive communication, but the publisher felt that the term 'intercultural' would appeal to a larger readership. The term 'discourse' implies a relational, decentred, multiperspectival, variable approach to culture that offers less certainties to businessmen, politicians, and language teachers, who prefer to see in 'culture' something stable, predictable, and controllable. It was left to critical discourse analysts and applied linguists like Alastair Pennycook (2001) and Norman Fairclough (1992) and to post-structuralist sociolinguists like Jan Blommaert (2005) to draw attention to the decentred, historically contingent, and conflictual nature of discourse across cultures.

2000 to the present: culture as portable historicity and subjectivity, constructed in and through discourse

This discourse approach to culture has coincided with larger geopolitical changes at the turn of the century as a result of globalization: global information networks, mass media around the clock, global marketing, and the communication culture of fast capitalism have increased the gap between the realities on the ground and the discourses that give meaning to these realities. Economic globalization has exacerbated the clash between the discourse of a global market and the discourse of local traditions and beliefs (Coupland 2009). Given the widespread migrations and the divergence of interests around the globe, communication across cultures can no longer be seen as the dispassionate, rational negotiation of meaning between two interlocutors who come from two different national cultures. It has to be seen as a complex system of emergent multilingual meanings with non-linear and unpredictable outcomes, where interlocutors occupy various subject positions on various timescales and with various forms of dominance and control (Lemke 2000; Pennycook 2007; Larsen-Freeman and Cameron 2008). Some applied linguists have proposed 'language ecology' as a metaphor for this complexity approach to the study of language as cultural context (Kramsch 2002; van Lier 2004; Kramsch and Zhang 2018).

In so doing, they have echoed similar trends in sociolinguistics and anthropological linguistics. Sociolinguist Jan Blommaert has suggested the notion of 'layered simultaneity' to capture the fact that actions and events occur at any given time on various temporal and spatial scales, often causing miscommunication. Indeed, in the era of globalization linguistic and literacy resources that would be functional in one place become dysfunctional when transplanted to other places, as in the case, for example, of a Congolese woman in Belgium accused of shoplifting who was asked by the police to write her version of the events. Her literacy practices were perfectly appropriate in Africa but failed to achieve their effect with the Belgian bureaucracy (Blommaert 2005: 82).

Linguistic anthropologists have moved away from studying culture to studying historicities and subjectivities. As linguistic anthropologist William Hanks (1996) demonstrated on Yucatec

Maya communities, language as symbolic practice constructs the genres, identities, and subjectivities of our daily existence. Through the pervasive indexicality of discourse and the citationality of speech acts, present utterances are permeated with prior discourses that irrupt into the present and bring about both the historical continuity and the discontinuities of culture.

Thus, recently, the growing heterogeneity of national cultures and the increased mobility of people across national borders are challenging simplistic dichotomies of Self and Other and are inviting researchers to rethink the relation of language and culture in language education in various parts of the world. In the US, intercultural education has often been associated with cross-cultural psychology, which does not give much attention to language per se. When the European concept gained interest among American language educators, it lost the strong moral and political dimension it had in European educational circles and was given an individualistic and instrumental dimension. If in Europe intercultural education strives to promote tolerance and intercultural citizenship, in the US it focuses more on participation and collaboration around common tasks for the empowerment of the individual. In Australia, intercultural learning has become the major pedagogic objective for foreign language educators (Lo Bianco et al. 1999), with the more cosmopolitan goal of preparing citizens of the world who can act as a bridge between East and West.

The field of applied linguistics itself has become more aware of inequalities not only within its object of study but also within its own field of research. The gap in visibility between research in the Global North and research in the Global South has become more apparent. The work of scholars in Argentina, Brazil, or Colombia rarely reaches readers in the Anglo-American world if it is not written in English. And yet, its contributions to critical discourse analysis (Cavalcanti 2004; Cavalcanti and Maher 2017), gender studies (Moita-Lopes 2017; Milani 2019), complexity theory (Menezes 2013), Indigenous languages education (Souza 2007), and post-colonial theory (Mignolo and Walsh 2018; Guilherme and de Souza 2019) have been invaluable in the study of language and culture in applied linguistics.

In the last ten years, the explosion of digital technologies has revolutionized communication across cultures and has exacerbated the instrumentalization and commodification of language. The Internet and the networking culture online, with its blogs, chatrooms, and the networking sites Facebook and Twitter, present a challenge to institutional authority and to established cultures. They offer a virtual ahistorical world of connections and relations that replace quality with quantity, time with space, and reality with hyperreality (e.g. Poster 1990; Kramsch 2021). The construction of these virtual worlds is heavily dependent on symbolic systems and the impact of symbolic form on the emotions and beliefs of computer users.

The algorithms of Google and the business model of social media are manipulating our knowledge and desires to feed the needs of customer predictability within what has been called ‘surveillance capitalism’ (Zuboff 2019). The spectacular advances in artificial intelligence based on deep learning and big data engineering have made machine translation increasingly accurate and have brought Google Translate right into the cell phones of language learners (Vinall and Hellmich 2022). The rise of such social media companies as Facebook and Twitter has transformed local uses of language into global discourses that risk homogenizing the planet into one global English-speaking culture. Applied linguists worry that computer technology, which aims at total translatability across languages, is reducing the differences between languages and cultures in the name of communicative efficiency (Gramling 2021; Kramsch 2021) and is being used by politicians to undermine the very democratic system that enabled such technology to be invented. This is an area of applied linguistics that continues to be in dire need of research, as it is increasingly affecting our sense of who we are and who we have been, as well as our understanding of our surrounding culture.

Critical issues and topics

In the last two decades, applied linguistics has been concerned about its identity as an interdisciplinary field of research at the intersection of theory and practice. Most of the current issues with which applied linguistic research has to grapple come from the applied and interdisciplinary nature of the field and the problems this presents for the study of language and culture. I consider five of them in the following sections.

Description versus prescription

The first issue that confronts an applied field like applied linguistics has to do with the expectations that the findings of researchers will lead to immediate prescriptions for the practice. Businessmen expect from applied linguists prescriptions on how to behave when negotiating deals with partners from other cultures, medical personnel expect to learn how to improve their bedside manners by tailoring their care to their patients' 'culture', and court translators expect to learn how to interpret and convey the intentions of their clients beyond the words uttered. The issue of description versus prescription lies at the core of any applied field. It raises questions of ethical responsibility that emerge also in the second issue, hotly debated in applied linguistics – the role of culture in language tests.

Description versus prediction

The cultural bias of language tests has long been a serious concern of applied linguists. While language tests are supposed to predict future verbal behaviour in a variety of social contexts, very often their cultural content seems to want to predict cultural assimilation, not merely linguistic ability. Shohamy (2001) has demonstrated conclusively how language tests have been used to discriminate against ethnic groups in immigration situations. McNamara (2005) has shown how tests that purport to test linguistic abilities, in fact, like the biblical shibboleth, often test cultural allegiance and loyalty. Language tests raise the thorny issue of the relation of language and thought and how much cultural knowledge gatekeepers are entitled to require of potential immigrants to industrialized societies. The problem is equally acute in the other real-world problem which applied linguists are called upon to adjudicate – namely, achievement tests in educational systems. Testing researchers have shown how standard achievement tests (SATs) are skewed in favour of test takers who are from the same culture as the test designers (Freedle 2003). Current efforts in Europe to test for intercultural competence risk oversimplifying 'culture' and the notion of 'intercultural citizenship' (Council of Europe 2018a and b).

Linguistic versus political concerns

Many applied linguists, especially those who help immigrants deal with ethnic prejudice and discrimination and facilitate their adjustment in the host country, would agree that applied linguists are called to play a political role. In courtrooms and classrooms, in hospital wards and health services, in boardrooms, and at press conferences, applied linguists are confronted with political problems in the real-world where the language-culture nexus comes into play. Systemic racism and sexism in nations across the globe and the 'culture wars' going on in countries like the United States about how to memorialize historical events are tearing democratic societies apart. And applied linguists are called upon to provide practical answers for language educators as to how to teach the nexus of language and culture (see the section 'Recommendations for practice').

Structuralist versus post-structuralist approaches to research

There is currently some debate as to whether to consider this nexus from a structuralist or a post-structuralist perspective. Post-structuralist thinkers like Cameron (2005) and McNamara (2012) see culture as constructed in and through discourse and emerging locally from verbal interactions in historically contingent contexts. Post-structuralism precludes any essentialization of cultures. Rather than focus on the binary and even conflictual nature of structures in the social world – males versus females, powerful versus powerless, native versus non-native – it turns its attention away from the structures themselves and focuses instead on the conditions of possibility of certain structures emerging rather than others at certain points in time. For example, using Blommaert's example mentioned earlier, applied linguists in the post-structuralist vein do not ask 'How could the Congolese shoplifter write a better letter to persuade the Belgian authorities of her innocence?' but ask 'What conditions of colonization, globalization, and ethnic prejudice led this woman to move to Belgium in the first place and be accused of shoplifting?' The first question leads directly to social welfare and domestic political activism. The second does not lead to a concrete solution to the problem at hand but addresses the more complex and no less political issue of language, culture, and globalization (e.g. Coupland 2009).

Real-world problems

The question, then, lies in the nature of the 'real-world' problems that applied linguists are meant to solve. How should these problems be framed? And who gets to frame them: the practitioners and politicians or the researchers? A case in point is the current rift between foreign/second language acquisition research and research on developmental bilingualism in applied linguistics. The first is usually seen as dealing with the development of mature adolescents and young adults learning a foreign/second language in instructional settings. The second is seen as focusing on children learning two languages at birth, or children growing up in families that speak two languages or belong to two different cultures, or children of immigrants who don't speak the language of their ancestors but are familiar with their culture and now learn their heritage language in school. But the distinction is not as clear as it seems at first blush. Many foreign language learners can be found in elementary or middle schools, at a time when they are not yet fully socialized in their first language. Many bilinguals are mature adolescents learning their heritage language in instructional settings. Foreign language learners sometimes already know another foreign language, have grown up in various cultures, and undergo an equally powerful emotional experience learning the foreign language as bilinguals do learning the language of their ancestors. But in English-dominant countries, fighting for one's rights as a 'bilingual' is considered a more urgent matter of social integration and equal opportunity than choosing to acquire an additional language to enrich one's education. Moreover, foreign languages are framed in terms of foreign policy, while bilingual education and heritage languages are framed in terms of civil rights. Two different kind of learners, two different political cultures. While second language acquisition research has taken a bi- or even multilingual turn (May 2013), critical applied linguists are currently questioning the traditional definition of the real-world problems at hand in these two cases (e.g. Kramsch 2019; Macedo 2019).

Current contributions and research

Research on language and culture in applied linguistics is conducted today by scholars in educational linguistics, linguistic anthropology, and sociolinguistics. Because culture is no longer

seen only as the national characteristic of speakers of a national language, it has come to mean membership in a social group defined by a common social class, religious affiliation, occupational or educational background, common political views, or generational characteristics, not necessarily by a common nationality. Because of this splintering of 'cultures' into different social groups, it is tempting to think that language today is dissociated from any particular cultural context. But this is a fallacy. In fact, we have rarely been subjected to more cultural mis- and disinformation, marketing manipulation, and political post-truths than we are today. Language itself has become culturalized, politicized, and instrumentalized for power purposes in all spheres of public life (McIntosh and Mendoza-Denton 2020). Current contributions and research respond to these developments in different ways.

One can notice, for example, a difference of research focus in the Spanish- or Portuguese-speaking Global South and in the English-speaking Global North. As mentioned earlier, researchers from the Global South have made substantial contributions in diversifying what is meant by 'culture', 'language', 'knowledge', and 'power' within various post-structuralist theories, such as complexity theory, post-colonial theory, Foucauldian discourse theory, or post-modern theories of gender and sexuality, linguicide, and language revitalization. While many researchers in the Global North have also made lasting contributions in these areas, many of them still adopt a more structuralist perspective to studying the use of communication technologies on language learning and teaching, the use of translanguaging and translation in language education, and the spread of multilingualism and diversity in schools and in the workplace. In the US in particular, the field of applied linguistics has had to respond to the institutional demands for measurability and accountability in a neoliberal economy (e.g. how do you test intercultural competence [Byram 2021] or symbolic competence [Kramsch 2011]?). Thus, the academic culture of the field of applied linguistics is itself a factor in its legitimacy, its credibility, and ultimately its viability in various countries (see Kramsch 2014).

Recommendations for educational practice

It is a sign of the times that the second edition of this *Handbook* features 'Recommendations for practice'. As global mobility, global digital communications, and the global spread of English have made the link between language and culture more complex and politically more contested, language educators are justifiably concerned about how to teach languages in their sociocultural contexts of use.

Whether they are native or non-native speakers of the language they teach, language teachers are typically worried that they are not qualified to teach 'culture'. Their persisting question 'We don't know what culture is nor do we know how to teach it', when so much has been written about it, shows that 'culture' is still taken to be a body of knowledge outside the linguistic system and that teachers might not know how to define their own culture, let alone a foreign one. Fearful of teaching stereotypes and anxious not to bring politics into the language classroom, language teachers do not all agree that they should teach 'meaning' beyond the meanings captured by grammars and dictionaries. They do not feel legitimized to teach the living, idiosyncratic cultural meanings given to words by living speakers who might or might not be native speakers. In the old days, when 'big C' Culture was synonymous with literature and the arts, language teachers had no qualms about assessing a student's ability to interpret a poem or a painting in the language class. Today, the democratization and popularization of culture and its fragmentation into various subcultures and hybrid cultures make teachers feel inadequate to the task of knowing, let alone interpreting, foreign cultures. In our days of multiple-choice tests,

many teachers have lost the ability to evaluate the validity of arguments explaining cultural events on the basis of historical, literary, social, or political knowledge. Ultimately, they fear not being able to control the transmission of cultural knowledge if it cannot be standardized or normativized. The link that applied linguistics establishes between discourse and culture invites language teachers to reflect on how their own discourse and culture have shaped their identity as individuals and as teachers.

The research discussed earlier suggests four main implications for teaching and learning languages and cultures, or 'languacultures' (Agar 1994).

Increased reflexivity. While the communicative approach to teaching languages is still the preferred approach, efforts to integrate cultural content (e.g. content and language integrated learning in Europe or content-based instruction in the US) or to develop intercultural communicative competencies within a communicative curriculum (Council of Europe 2018 a and b) speak for fostering not just native speaker-like fluency but interpretive and reflexive abilities as well. The push to validate learners' diverse cultural experiences and their knowledge of other languages and cultures calls for allowing translanguaging practices in the classroom instead of rigid total immersion in the L2 (Li Wei 2018).

L2 literacy. The overwhelming dominance of the spoken modality in communicative language teaching is now giving way to efforts to develop learners' ability to analyze and interpret spoken and written texts and to understand cultural differences in discourse forms. Many educators are concerned about the reduced attention span of students raised on Netflix and social media; they advocate deliberately training them to read longer passages of written texts to develop analytic and interpretive literacy (Kern 2000) and symbolic competence (Kramsch and Whiteside 2008; Heidenfeldt and Vinall 2017).

Translation. While translation remains associated with the now-discredited grammar-translation method of teaching languages, a post-structuralist discourse approach to culture suggests rediscovering the benefits of close reading to recover the social, historical, and cultural meanings of words. Translation, therefore, needs rehabilitating, not as a tool to find linguistic equivalences but as a way to highlight the cultural complexities between linguistic systems and the uniqueness of each one.

Use of technology. Today, language learning is inseparable from searches on the Internet, language use on social media, and the use of Google Translate (Vinall and Hellmich 2022; Urlaub and Dessein 2022). The Internet and the new media offer a wealth of non-pedagogic resources that make language learning exciting, relevant to the real world, and with possibilities of real-life participation. Google Translate, by readily removing the hurdle of referential opacity, can leave more classroom time for a deeper exploration of other functions of language and stylistic meaning-making devices in both spoken and written texts. However, most language teachers lack the training to engage their students in such an exploration. The increasingly instrumental view of language in the public sphere and the low status of language teachers in the academic hierarchy have devalued language education. One of the major recommendations for educational practice is therefore to upgrade the training and the status of language teachers at academic institutions.

Future directions

In applied linguistic research and practice, the link between any given language and any given culture has become controversial. It is evoked by various interest groups for economic or political gains. Computer technology promises to do away with cultural boundaries altogether, but it only exacerbates the desire to create new communities of practice that will, in time, establish

their own cultures of inclusion and exclusion and their own gatekeeping conventions for the use of symbolic systems.

Culture might slowly loose its power to explain human behaviour in a multilingual/multicultural world where people are born in one culture, grow up in another, and end up living and working in a third. In the multimedia environments of the computer, language itself may change its value and use. More important than a person's 'language' and 'culture' might be the socioeconomic, historical, or ideological subject positions that people take and that get expressed through the multiple symbolic systems they choose to use, be they verbal, visual, musical, or virtual, to represent and act upon the world and others in multiple ecological dimensions. Culture in action is less a question of stable values, identities, or ideologies that cause people to act in certain ways and is more a repertoire of strategies for action that individuals activate differently depending on whether they lead 'settled' or 'unsettled' lives (Swidler 1986) and which discourse systems they participate in (Scollon et al. 2012).

The debate between structuralist and post-structuralist views on language and culture is sure to continue in the future. Post-structuralism is a challenge for applied linguistics (McNamara 2012) because it seems to blur the distinction between the social sciences, with their positivistic, objective, evidence-based methods of inquiry, and the human sciences, with their hermeneutic, subjective, interpretation-based modes of analysis. Given the increasing prestige accorded to the physical and natural sciences over the humanities, any attempt to make the interpretation of culture dependent on the subject position of the researcher brings the applied linguist, as Clifford Geertz would say, 'rather closer to what a critic does to illumine a poem than what an astronomer does to account for a star' (1983: 10). As always, the applied linguist studying the language-and-culture nexus has to weigh scientific validity against scientific reliability or attempt to redefine altogether the very bases of its scientific endeavour. With regard to educational practice, the teaching and learning of languages will have to find a way of benefitting from the new digital technologies without losing sight of its humanistic mission in a post-humanist world (Pennycook 2018).

Related topics

language and teacher education; language socialization; intercultural communication; critical discourse analysis; technology and language learning; language learning; identity; sociocultural theory; multilingualism

Further reading

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14
Language socialization

Agnes Weiyun He

Introduction

Language socialization (LS) is a research tradition that is rooted in linguistic anthropology and that considers language not as a formal code, a medium of communication or a repository of meaning, but as a semiotic resource for 'invoking social and moral sentiments, collective and personal identities tied to place and situation, and bodies of knowledge and belief' (Ochs and Schieffelin 2008: 8). In this view, all communicative forms – including lexico-grammar, prosody, speech styles and genres, turn-taking structures and sequences, and language and dialectal choices – bear a symbiotic relation to culture and context. This linguistic anthropological research tradition, although relatively short, has had a significant impact on all areas of applied linguistics.

As initially formulated by Ochs and Schieffelin (Ochs 1990, 1996; Ochs and Schieffelin 1984; Schieffelin and Ochs 1988, 1996), LS is concerned with (1) how novices (e.g. children, second/foreign/heritage language learners, new members of given communities and workplaces) are socialized to be competent members in the target culture through language use and (2) how novices are socialized to use language. This approach focuses on the language used by and to novices and the relations between this language use and the larger cultural contexts of communication – local theories and epistemologies concerning social order, local ideologies and practices concerning socializing the novices (e.g. rearing children, teaching students, apprenticing newcomers), relationships between the novice and the expert, the specific activities and tasks at hand, and so forth. By its very conceptualization, LS is centrally concerned with human development and growth in areas where language and culture intersect. In other words, it views language education not just as a physical site, but more importantly as a set of practices. It asks questions such as how learning takes place in and through language, regardless of the setting.

Historical perspectives

Long before language socialization came into existence as a field of scholarly inquiry, it had been recognized that to fully appreciate a language, one needs to understand the culture of

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the people who speak it, and vice versa – language and culture are intrinsically connected. Learning about cultures helps us delve deeper into the meaning of words and ways of communication. One will not fully master a language unless one understands the culture, just as one never fully understands a culture until one is immersed in a study of the language. Language is constantly in flux and largely dependent on the ever-evolving views, values, and customs of its speakers.

As the Sapir-Whorf hypothesis suggests, language reflects and embodies the values and beliefs of a culture and the limits and structure of language determines or influences (depending on which version of the hypothesis – strong or weak) their user's thoughts and actions. For example, the complex kinship terms used in the Chinese language reflect the significance the Chinese culture places on social distances, social hierarchies, and roles, obligations, and responsibilities that constitute the family construct. Furthermore, language also affects the way we perceive the world and consequently how we choose to interact with it. Some examples explored by those who study linguistic relativity include the concepts of time, space, colour between languages (for a critical review, see Zhu Hua 2019: 183–193). Additionally, language also reflects the history of a culture and explains why certain ideas and beliefs are so prominent and profound. For example, again using Chinese as an example, 心 *(xīn)* is often directly translated to 'heart' in English. However, the word in fact also refers to the mind and to one's emotions (Yu 2002). 心 *(xīn)* is an important concept in Daoist teachings, the impact of which on modern Chinese values and culture remains evident today. Clearly, the deep-rooted meaning of the term *xin* is something a Chinese language learner (whether a child or an adult second/foreign language leaner) would want to take to *heart* if they are committed to understanding the full connotations of the word.

A clear understanding of the relationship between language and culture is of critical importance for language learning and language use, topics to which applied linguistics is primarily dedicated. While various versions of the Sapir-Whorf hypothesis (and their derivatives) clearly point to the multifarious ways in which language and culture are interwoven, they do not specify (1) the exact mechanisms or logical paths one needs to apply or take to connect language and culture or (2) the process of language and cultural development. From a language learning standpoint, as a child learns the language of their natural environment or as an adult learns an additional language, how will the child or the adult learner be able to perceive and to put into practice the connection between language forms and cultural meanings and how will the perception and practice evolve over time?

Language socialization advances and crystallizes our understanding of the relationship between language and culture through its foundational notion – indexicality. Indexicality is conceived of as a property of speech through which sociocultural contexts (e.g. identities, activities) are constituted by particular stances and acts which in turn are indexed through linguistic forms (Ochs 1990, 1992, 1993). That is to say, the indexical relationship between linguistic forms and sociocultural contexts is often achieved indirectly, instead of directly (i.e. one or more linguistic forms indexing some contextual dimension). According to LS,

> [a] feature of the communicative event is evoked indirectly through the indexing of some *other* feature of the communicative event. . . . the feature of the communicative event directly indexed is conventionally linked to and helps to constitute some second feature of the communicative event, such that the indexing of one evokes or indexes the other.
>
> *(Ochs 1990: 295)*

Furthermore, the relationship between sociocultural dimensions of the communicative event and linguistic forms is not random. Social identities of the participants, relationships among participants, affective dispositions of participants (feelings, moods, and attitudes of participants toward some proposition), epistemological dispositions of participants (beliefs or knowledge vis-à-vis some proposition; for example, the source of their knowledge or the degree of certainty of their knowledge), social/speech acts and activities, and genres are both reflected in the linguistic choices and constructed through these choices.

The advantages of this perspective are illustrated in He (2000), for example, which documents a three-phased directive pattern in the teacher-student interaction in Chinese language classes: orientation, evaluation, and directive. Specifically, the teacher first orients the students to some state of affairs which in turn renders the students' behaviour problematic, then formulates negative consequences which may result from the students' problematic behaviour, and only then does she issue a directive to correct the behaviour. Thus, rather than simply issuing directives, the teacher weaves cultural values (e.g. appreciating parents' efforts and conforming to the group) in the prefaces so as to warrant the directives for desirable behaviour.

Moralized directives as described in He (2000) index both an affective disposition and social identity. They directly index affective dispositions of being moral and authoritative and indirectly index the social identity of the speaker – that of a parent or a teacher, as in the Chinese culture parent/teacher roles are largely defined in terms of or constituted by moral and authoritative dispositions. Confucian teachings, which have provided the dominant educational and social ethos for the major part of the Chinese history, are primarily concerned with moral conduct as the basis of social harmony. It is thus the teacher's and the parents' prerogative and responsibility to socialize the students/children into the various virtues (known as *li* /礼) that regulate all human conduct.

Although 'teacher' is a universal social role, the communicative practices as teachers vary considerably across cultures and societies. In other words, there is not a one-to-one mapping relationship between three-phased moralized directives (language forms) and the social identity of the teacher (cultural context). Instead, the relation of moralized directives to the identity of the Chinese teacher is constituted and mediated by the relation of language forms to stances (e.g. moral and authoritative), activities, and other social constructs. As such, students in these classes come to understand teacher-related meanings in part through coming to understand certain recurrently displayed stances (e.g. upholding moral values such as filial piety).

The LS approach to indexicality provides a systematic account of how language relates to cultural context. With LS, we can examine how different displays of and reactions to certain acts and stances (e.g. moralizing) construct different identities and relationships. It also allows us to examine the construction of multiple yet compatible/congruent identities, blended and blurred identities in multilingual, multicultural, immigrant contexts.

Critical issues and topics

Most work in LS has focused on analyzing the organization of communicative practices through which novices acquire sociocultural knowledge. From an LS perspective, language learning and teaching is a social, cultural, and interactional process which inherently involves both the learner/novice and the teacher/expert. This perspective has appealed to applied linguistics for several reasons. First, it interfaces with some of the primary concerns of language acquisition research, such as the impact of the acculturation of the learner on their second language acquisition (Schumann1978, 1990). Second, its ethnographic orientation and the importance it attaches to context show strong affinity with various sociocultural approaches to language

learning (e.g. Atkinson 2011; Duff 2019). Third, its focus on communicative practices resonates with the more interactionally and ethnomethodologically oriented approaches to second/foreign language acquisition (Firth and Wanger 2007; Markee 2015; Young 2009). And last but not least, its emphasis on developmental cultural competence and its theory of indexicality contribute directly to the understanding of the learner's language use and interculturality throughout the developmental stages (Liddicoat and Scarino 2013; Zhu 2019).

Not only has LS been appealing, but it has also been challenging to the field of applied linguistics. It reconceptualizes language development in a number of ways. It redefines what it means to know a language, advances an indexical (rather than correlational) view concerning language and culture, enables us to see the acquisition of language forms in a culturally accountable way, and takes ordinary interaction to be the primary sites for learning and socialization.

What it means to know a language

LS considers language practice as a set of indexicals participating in a network of semiotic systems and treats language acquisition and socialization as an integrated process. Linguistic meanings and meaning-makings are therefore necessarily embedded in cultural systems of understanding. An account of linguistic behaviour (speaking and listening) must then draw on accounts of culture. Accordingly, the knowledge of a language includes a set of norms, preferences, and expectations relating linguistic structures to context, which language users draw on in producing and interpreting language (Ochs 1988).

For example, the acquisition of modal elements in language is a particularly interesting area developmentally. Epistemic modals (e.g. *must* in 'Everything that goes up must come down') provide learners with a resource for developing the capacity to infer, predict, generalize, and hypothesize, and deontic modals (e.g. *should* in 'When playing with your friends, you should always take turns') provide a resource for learner's exploration and understanding of social obligations, responsibilities, constraints, and cultural and moral values. Rather than focusing on the timing and frequency of isolated instances of production, an LS approach would argue that (1) it is not context-free frequency but rather the understanding of the degree of situational relevance and cultural meaningfulness that indexes the learner's competence and (2) learners' acquisition and use of modal language is as integral part of a more general socialization process. Lo (2004), for instance, demonstrates how expressions of epistemic stance relate to moral evaluations by looking at cases in which teachers in a Korean language class claim to read their students' mind with a high degree of certainty. Lo argues that Korean language learners are socialized to portray their access to the thoughts and sensations of other individuals differently depending upon who these individuals are. If the individuals are perceived as morally worthy, then the access is portrayed as distant; if they are perceived as morally suspect, then the access is presented as self-evident.

How culture/context relates to language

From an LS perspective, language learners' acquisition of linguistic forms requires a developmental process of delineating and organizing contextual dimensions in culturally sensible ways. Indexical knowledge, as Ochs (1996) argues, is at the core of linguistic and cultural competence and is the locus where language acquisition and socialization interface. An LS model accounts for learners' grammatical development in terms of the indexical meanings of grammatical forms. The underlying assumption is that 'in every community, grammatical forms are

inextricably tied to, and hence index, culturally organized situations of use and that the indexical meanings of grammatical forms influence children's [and learners' in general] production and understanding of these forms' (Ochs and Schieffelin 1995: 74). In this model, learners are viewed as tuned into certain indexical meanings of grammatical forms that link those forms to, for example, the social identities of interlocutors and the types of social events. This model relates learner's use and understanding of grammatical forms to complex yet orderly and recurrent dispositions, preferences, beliefs, and bodies of knowledge that organize how information is linguistically packaged and how speech acts are performed within and across socially recognized situations (Garrett 2020).

What constitutes evidence of learning

While acquisition research has largely focused on frequency in output as evidence of learning, LS research has looked for culturally meaningful practices across settings and situations (Ochs and Schieffelin 1995). Within a sociocultural perspective, language socialization views language acquisition 'as increasing competence in both the formal and functional potential of language. By functional, I mean the multiplicity of relations between language and context, including that in which language creates context' (Ochs 1988: 13). Over developmental time, language learners acquire repertoires of language forms associated with contextual dimensions (e.g. role relationships, acts, events).

In the case of acquisition of modal expressions mentioned, as directives masked with modals of low obligation are used by persons of power and authority (e.g. teachers, parents, or any elderly person), a learner who has acquired the meaning of the modal verb 'can/may' may in fact not be using the form in their speech to the teacher in the same manner the teacher does to the students because it would be pragmatically and culturally inappropriate. Hence, frequency in output alone will lead to a misguided interpretation of the student's acquisition of modals (He 2011a). From an LS perspective, we need to ask the following questions: (1) In what contexts is the modal form used by the learner? (2) What is the impact, if any, of the sequential organization of interaction on the learner's (non-)use of modals? (3) What is the impact, if any, of the local activity on the learner's (non-)use of modals? (4) What stances are exhibited by the (non-)use of modals? And (5) how are these stances associated with social roles, identities, responsibilities, and obligations in the local community?

Research methods

In the ethnographic tradition of research on language learning/use (Duff 2021), the LS researcher plays a dual role, both as a keen observer and reflective participant and as an investigator providing explanations of events/phenomena in natural settings. While the researcher is a key instrument for data collection, the researcher-participant dual status affords the researcher space to establish her/his credibility and enables the reader to experience complexity, unpredictability, surprise, or difficulty about her/his field work vicariously.

To accomplish the goal of discovering and presenting the participant's view (the emic view), researchers rely primarily on observation, participation, recording, and interview as field methods. Researchers spend a great deal of time observing what actually, naturally happens in the field as they collect and make sense of the participants' language behaviour. Observation may (but does not have to) take place while the researcher herself/himself also participates in the events being observed (participant observation). For example, an LS researcher may also serve as a volunteer teacher in community-based heritage language schools in order to understand

the nature of heritage language maintenance. LS researchers may also go beyond naturalistic observation to intruding upon the natural setting and obtaining particular information directly from the participants through recording naturally occurring speech events and conducting various interviews, ranging in style from structured to informal.

In terms of the kinds of data, besides observation and interview data, the researcher may also gather a variety of handwritten and digital materials, such as diaries, letters, samples of learners' homework, family correspondences (either handwritten or digital), still images, community demographic data, and audio and video recordings of actual interactions in the home and in the classroom in order to present an interactionally enriched account. The ethnographic accounts and interactional analyses are presented within a specific set of conditions and contexts, including the 'culture' of the family, the community or the classroom, or the larger context of immigration history, language ideology, and language policy. Audio/video recordings of recurrent and significant socialization activities are carefully transcribed, and the grammatical, discursive, and non-verbal details of interaction are related to the construction of social and cultural ideologies that define a community. The analysis of ethnographic and interactional data is necessarily inductive, comprehensive, recursive, and interpretative, with the end products being descriptions and interpretations of language and cultural learning and language use that are grounded in both micro and macro contexts.

The goal of LS is to draw large conclusions from small but culturally related and recurrent and densely textured events/experiences and to support broad assertions about the mutually constitutive relationship between language and culture by situating language and life in complex, concrete specifics. As is the case with any other analytic perspective, however, a LS approach certainly faces its own challenges, the greatest of which is the validity of this line of work. Are the ethnographic information and interactional data collected valid representations of the participant's life and language? Are they the co-constructions jointly produced by the researcher and the participant? To make claims supported by the ethnographic and interactional evidence, the researcher needs to understand and make clear the nature of her/his collected and (re)constructed data, addressing challenges with regard to the degree of participants' disclosure, the limits imposed by language itself and by the level of participants' language proficiency, the influence of the researcher on participants' responses, and the gap between small details and large issues.

Furthermore, the final ethnographic accounts generated from interviews, observations, and interactional analyses are not merely data gathered from participants; they embody as well the researcher's objectives and preferences. Briggs (1986) noted that the very ways in which we ask questions may impose limitations on or suggest directions for answers. Researcher attributes such as language choice/language style, immigrant experience (or lack thereof), sociocultural status, gender, and non-verbal behaviour may all contribute to participants' choice of responses. Ultimately, the researcher is to interpret and clarify the meanings of the ethnographic and interactional data, taking into account the impact of the social and cultural contingencies. The challenge for LS has always been to ensure the validity of the connection we make between discrete accounts of mundane interaction in everyday life and generalizations about language development and language change.

Current contributions and research

Early LS research focused on non-school settings, such as traditional cultures, non-American cultures, and everyday encounters (e.g. Heath 1983; Ochs 1988; Schieffelin 1990; Schieffelin and Ochs 1986a, 1986b). During the period from 1990s to 2010s, research guided by LS

directed its attention to formal educational settings, such as second/foreign/heritage/bilingual language teaching and learning in the classroom and in the community (Bayley and Schecter 2003; Cook 1996; Creeze and Martin 2006; Fader 2009; He 2006, 2011b; Lo 2004; Ohta 1999; Schecter and Bayley 2004; Watson-Gegeo and Nielsen 2003; Zentella 1997; Zuengler and Cole 2005). A large body of empirical studies documenting the various formal and functional aspects of LS concerned with different subgroups of learners appeared. These studies largely focused on one language proficiency level of the subjects at one life stage in one specific life circumstance. They showed that successful LS depends on the role of school systems, social institutions, and historical experiences of particular language communities, as well as language ideologies, proficiency assessment that is suitable for specific types of learners (second, foreign, or heritage language), and adequate literacy development. They also indicated that a range of variables may influence LS, including social prestige of the language, number of speakers, affinity to native country, vitality of language programs, learners' social and ethnic positionings, degree of family bond, and discourse and interactional practices.

In the last decade, we have seen a steadily increasing body of LS work permeating all aspects of applied linguistics (Duff and May 2017) and exhibiting the following characteristics. First, while research on socialization practices specific to particular languages and cultures continues to grow, such as Yiddish (Avineri 2015), French (Riley 2017), Korean (Suh 2020), and Vietnamese (Shohet 2013), there has been a significant expansion of focus from monolingual socialization practices to LS practices in multilingual, transcultural, transnational space where different languages and cultures come into contact, conflict, or convergence, such as Korean 'study abroad' families in the US (Song 2012), discourse, ideology, and heritage language socialization (Guardado 2018), socialization across educational settings (Baquedano-López and Hernandez 2011), and socialization at the intersection of local and global (de León and García-Sánchez 2021). There has also been a more critical and more comprehensive investigations into the concept, type, and significance of different socialization agency (Duff and Doherty 2014), which, beyond parents and teachers, includes for example newcomers (Lønsmann 2017), siblings (Kheirkhah and Cekaite 2018; Taylor and Kan 2021), and grandparents (Kirschen 2020). Furthermore, there has been greater explorations of the ways in which language socialization can illuminate a wide range of related areas of research, such as sociolinguistics (Watson-Gegeo and Bronson 2013), L2 pragmatics (Diao and Maa 2019), emotion and affect (Burdelski 2019), language choice (Ghimenton 2017; Paugh 2019; Wang 2017), place and belonging (Schieffelin 2018), deafness (Pfister 2017), dementia (Sounders 2017), language endangerment (Meek 2019), language revitalization (Schwartz 2018), family language policy (Lanza 2019), and very importantly, social justice – with respect to race (Chaparro 2019), gender (Brutt-Griffler and Kim 2018), and marginalization (García-Sánchez 2015). Finally, greater attention has been paid to socialization in the modalities beyond face-to-face interaction, such as in the written format (Curdt-Christiansen 2017; King 2015) and through digital communications (Duran 2017; Ishihara and Takamiya 2019).

Future directions

In the coming years, language socialization will continue to expand its focus to include settings, languages, populations, and modalities that have become drastically more diverse given increasing global migration, new digital innovation, and greater societal inclusion. We can expect LS research to focus on not merely languages but also language shift and language choice, socializing not merely cultures but also intercultural competence and intercultural

communicative competence. We can further expect LS to contribute to the study of marginality and to blaze new paths for the exploration of complex and dynamic LS trajectories in contexts of linguistic, social, political, and economic inequality and inequity.

Specifically, LS research will target multilingual socialization, language socialization into digital communities, language socialization of culturally and linguistically uprooted populations (such as first-generation and '1.5-generation' immigrants), language socialization of linguistically disadvantaged and/or sociopolitically oppressed populations (such as speakers of minority languages and stigmatized dialects, the LGBT community, and the elderly), language socialization on both local and global scales, and multiple but simultaneous processes of language socialization (e.g. at home and at school).

We can also expect LS research to continue to perfect its core concepts and to enrich its methodologies. It is important to take a more nuanced look at varying possibilities and potentials of agency (e.g. co-participants, peers, fellow immigrants, fellow students, siblings) and varying degrees of expertise (e.g. more distributed models of expertise across speakers, 'imperfect' language experts such as immigrant parents). It will also be productive for LS to continue to incorporate new/additional methodologies such as narrative inquiry beyond ethnography, discourse analysis, and conversation analysis. Narrative elicitation (Ward 2021), for example, may be designed as experiments embedded in 'natural' social interaction and lead to insights otherwise unobtainable given the particular traits of the participants (e.g. age). Similarly, narrative knowing can be productively integrated with ethnography (Miller et al. 2011; He 2021) to provide (composite) data that are not only 'thick' but also 'long' (across the lifespan), as language competencies, choices, and ideologies change over time, reflecting changing motivations, social networks, opportunities, and other variables.

In addition to expansion of research along the temporal dimension, LS studies can also benefit from an extended focus from the individual language learner to other co-participants as well. It will be important to realize that expert guidance in LS may be multiple, conflicting, and contested. The language learner is engaged in multiple speech events in multiple settings for multiple purposes. The learning of heritage languages, for example, takes place through the learner's interactions with multiple participants, including language instructors, parents, grandparents, siblings, and peers, each of whom positions the learner in unique speech and social roles and each of whose reactions and responses to the heritage language learner helps to shape the path of their language development (He 2011b). Future LS research needs to highlight the co-constructed, multi-directional, non-linear, interactive nature of socialization activities.

Summary

Language socialization is concerned with the symbiotic process of language and cultural development. Originating from linguistic anthropology, it is becoming an influential research perspective in applied linguistics in general and in language acquisition studies in particular. Its main thesis is that novices across the lifespan are socialized into using language and socialized through language in socioculturally recognized and organized practices. Since 1990s, LS research has expanded from primary language socialization during childhood to the fields of bilingualism, multilingualism, and second or heritage language acquisition in linguistically and socioculturally heterogeneous settings characterized by two or more languages and cultures. Contemporary LS research permeates all areas of applied linguistics and addresses critical issues ranging from L2 pragmatics to family language policy, from affect and emotion to language endangerment, and from racial identities to writing abilities.

LS provides a culturally enriched, theoretically grounded, and empirically accountable perspective on issues and concerns central to applied linguistics. Along with parallel sociocultural approaches to language acquisition, LS precipitated both the social turn (Block 2003) and the multilingual turn (May 2013) in applied linguistics. With a broader temporal and spatial specification, a more nuanced view of the agency in the socialization process, and a continued openness to newer methodologies, research inspired and guided by LS will be poised to further illuminate the nature and the trajectory of language and cultural development across the lifespan and even across generations in multiple and interrelated physical, digital, and sociopolitical spaces for all participants.

Related topics

culture; identity; second language acquisition; sociocultural approach to language development

Further reading

Duff, P. A. (2019) 'Social dimensions and processes in second language acquisition: Multilingual socialization in transnational contexts', *The Modern Language Journal*, 103: 6–22. (This piece does not focus on language socialization per se but locates LS in a comprehensive overview of sociocultural approaches to language acquisition and language use. It can be productively read as LS for contemporary applied linguistics.)

Ochs, E. (1990) 'Indexicality and socialization', in J. W. Stigler, R. Shweder and G. Herdt (eds.), *Cultural Psychology: Essays on Comparative Human Development*, Cambridge: Cambridge University Press. (This is a conceptually critical piece that theorizes how language, culture, and human development relate to one another.)

Ochs, E. and Schieffelin, B. (1995) 'The impact of language socialization on grammatical development', in P. Fletcher and B. MacWhinney (eds.), *The Handbook of Child Language*, Cambridge, MA: Blackwell. (This chapter delineates how language socialization engages and interfaces with language acquisition.)

Ochs, E. and Schieffelin, B. (2008) 'Language socialization: an historical overview', in P. Duff and N. Hornberger (eds.), *Encyclopedia of Language and Education, Vol. 8 Language Socialization*, New York: Springer. (This is a historical overview by the founders of the field – a must-read for anyone interested in the intellectual genesis and transformation of the field.)

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Part II

Key areas and approaches in applied linguistics



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15

Grammar

Michael Swan

Introduction: what is grammar?

We can communicate a great deal simply by stringing ordinary words together. 'Tomorrow arrive mother', 'Look eat soap baby', or 'Dog walk want' make perfect sense in appropriate contexts. Clearly, however, there are limitations. Vocabulary alone cannot clarify causal and other relationships. Combining the words *bear*, *kill*, and *hunter*, or *girl*, *boy*, and *love*, or *floorboards*, *water*, and *under*, for instance, leaves important questions unanswered. A second limitation involves modality: no string of words taken alone signals its role as a statement, a question, an expression of uncertainty, or a negation. A further limitation is that words mostly label classes of things, qualities, processes and so on, whereas we typically talk about members of these classes. This requires us to group words: while *my*, *old*, and *dog*, for example, each have countless referents, the combination *my old dog* identifies one specific individual. In complex communications, juxtaposing words may not be enough to demarcate grouping.

Languages solve these problems by three devices that we loosely call 'grammar'. We can supplement lexical information by establishing ordering and movement conventions (syntax), by modifying words (morphology), or by creating special function words, like English *may* or *not*, which signal the roles of other language elements. These devices can show the directionality of relationships, distinguishing for example *girl loves boy* from *boy loves girl* or (the Latin equivalents) *puella puerum amat* from *puellam puer amat*. They handle modality, differentiating, say, *floorboards are under water* from *are floorboards under water*, *floorboards may be under water*, and *floorboards are not under water*, or contrasting *'Ready?'* with *'Ready'* (intonation is one way of changing the forms of words). And they indicate grouping (*big cat chases small dog* as against *small cat chases big dog*).

Reflecting our perception of reality, languages have words for situations and events, for participants in these, and for recurrent qualities. Grammar naturally handles these differently, establishing word classes like verb, noun, adjective, and adverb, and building structures with them. Given ways of grouping words into structures, it then becomes possible to group groups of words, so that grammatical mechanisms can govern increasingly elaborate assemblies and their constituents. Simple in principle, grammar thus generates considerable complexity in practice. In addition, grammar can be exploited for many purposes beyond those already

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identified. The world's languages put time and space relations, number distinctions, gender, social relationships, and numerous other meanings into their grammars – notions that could be handled by vocabulary, but for which grammar is a convenient vehicle.

Grammatical description

Descriptions of particular languages owe much to modern research; the times are long past when the surface grammar of Greek, Latin, or Sanskrit was taken to exemplify language structure in general. Our knowledge of English grammar, in particular, was greatly extended by the work of 20th-century scholars, and has been further amplified by recent research in discourse analysis (see Cook, this volume). Grammars have always drawn on substantial written corpora, and spoken corpora are well over half a century old, but their exploitation has been dramatically transformed through massive electronic databases of authentic language use (see Lin and Adolphs, this volume). These enable us to verify and refine traditional grammatical descriptions, as previously unobserved regularities and developments come to light. We can now investigate in depth the grammar-lexis interface, amassing increasingly detailed information about the structures associated with individual words. The distinction between grammar and vocabulary is inevitably becoming less clear-cut, the more so as scholars examine the grammatical and psycholinguistic status of formulaic multi-word items (Tomasello 2000), and explore the grammaticalization of vocabulary (as in the development of English *have*, *be*, and *do* into auxiliary verbs [Bybee et al. 1994]). The traditional distinctions between word classes, and between syntax and morphology, are also becoming more blurred, since the distribution and coverage of grammatical categories are increasingly found to differ significantly from one language to another. Up to a point, languages seem to balance off their deployment of different grammatical devices, with some for example relying largely on morphology while others put a heavier load on syntax. However, an old belief that all languages are pretty well equally complex, with simplicity in one area necessarily countered by complexity in another, is not supported by research (Sampson et al. 2009).

Grammatical choices depend somewhat on the communication channel. Standard accounts of many languages have focused on the structures found in formal writing, some of them limited to the grammatical repertoire of more highly educated people (Dąbrowska 2012). Technological developments now enable us to examine and compare extensive samples of spoken, written, and signed language, along with e-language and multimodal communication, and to question how well the familiar units of grammatical analysis capture all the varied structural realities of a language. Informal speech, for example, can be very different grammatically from formal writing. Rather than being packed economically into complex structures, spoken information is typically separated out and given piece by piece to facilitate processing. (One can read at one's own speed, backtracking as necessary, but one cannot listen at one's own speed.) Compare the following:

- *a carefully constructed progressive three-level course incorporating built-in oral and written revision tests*
- *a course with three levels, it's carefully put together, it's got revision tests, they're oral and written*

While speech is just as systematically structured – i.e. grammatical – as written language, it cannot always be analyzed using traditional syntactic concepts such as clause, sentence, coordination, or subordination. Current analyses may therefore adopt rather different sets of

categories, including consideration of situational, interactional, and gestural input (Carter and McCarthy 2017). A complicating factor is that electronic media are eroding the boundaries between oral and written communication, making reliable statements in either domain more problematic.

What we call 'grammars' are of course idealizations: generalizations across the usage of different regional, social, and occupational groups and generations at different times. Corpus-based research is facilitating increasingly comprehensive and individualized descriptions of the syntactic and lexico-grammatical characteristics of the language of such groups. (See, for example, Biber et al. 1999.)

Types of grammatical model

Any grammatical model provides a conceptual framework for understanding how language works. Inevitably, such a framework simplifies the complex reality of language, just as language in turn can only operate by simplifying the complex reality of the world. The categories of grammar are, so to speak, fuzzy at the edges (Aarts et al. 2004). So the construction of a grammatical model is not a straightforward matter. Further, grammatical models can serve different theoretical purposes. Commonly, grammarians establish categories of elements and operations which can capture as accurately and economically as possible the structures of particular languages. But some grammarians go further, creating more abstract theoretical models which aim to accommodate the multifarious structural features of all possible languages, thus illuminating the nature of language in general. In addition, some researchers attempt to show how language structure enables children to perform the astonishing feat of learning their mother tongues. Because grammatical systems are complex and differ widely, substantial disagreement can arise about what kind of generalized model best accounts for the facts. It is indeed remarkable how much controversy surrounds the analysis of a phenomenon for which we have such extensive data – as much as many physical scientists have for their investigations. The index of any linguistics encyclopaedia lists a daunting inventory of 'grammars': transformational, phrase structure, dependency, lexical functional, word, cognitive, construction, systemic, and many others. These differences arise partly from researchers' choice of focus, which can favour either the internal characteristics of linguistic structures or the functions they perform. This formal-functional divide accommodates a wide range of theoretical positions, along with important differences of opinion.

Formally oriented grammarians may account for shared features of languages – universals – in the belief that language is hosted and structured by a specific mental module. Proponents of this 'generative' view may postulate innate knowledge of the structures of possible grammars – so-called 'Universal Grammar' (UG) – claiming that we know things about our language for which the input provides inadequate evidence (the 'poverty of the stimulus' argument). A commonly used example for English concerns 'island constraints'. In a complex sentence, a word like *who* or *what* in a main clause can question an element in a dependent clause, but not in all cases. For example, we know that we can say *What did Ann say that this book is about?* or *What does Paul think that this book is about?* but not *What did Sue ask whether this book is about?* It is not easy to establish a reliable innate rule which will account for our knowledge of such constraints, allowing us to generate correct structures like the first two examples and avoid incorrect structures like the third. Further, such a rule would need to work for equivalent constraints in other very differently organized languages (since UG, if it exists, is necessarily language-independent). Models assuming innate grammatical knowledge therefore operate at a high and, in the view of some critics, implausible level of abstraction and complexity.

The difficulty of the enterprise is strikingly demonstrated by the changes in one prominent approach – Chomskyan generative grammar (see Wakabayashi, this volume) – over the years, with key ideas (e.g. transformations, government and binding, principles and parameters) being successively modified or abandoned.

Functionally oriented grammarians, in contrast, may regard language universals as essentially the structural features that any language needs in order to operate. Language acquisition and use, for many such scholars, are explained by general principles of learning and cognition rather than by any wired-in knowledge unique to language. Usage-based associative learning models attribute to the child learner a powerful unconscious capacity to detect regularities in the input, and to abstract patterns at increasing levels of generality (Ellis and Larsen-Freeman 2006). Knowledge of constraints like those illustrated earlier, in this view, may exist simply because the incorrect structures are not exemplified in the input, and are not therefore registered as possible by the child's inbuilt monitor.

Language and the world: applications of grammatical models

Language conveys messages about the world, so its organization must, at least in very general terms, reflect our perception of the world. Cognitive grammarians, in fact (e.g. Langacker 2008), see language structure as mirroring in some detail, albeit at an abstracted and metaphorical level, our conceptual and perceptual engagement with our physical environment. For some classical Western philosophers, language and the world were more directly related than this. Our knowledge of language structure, they felt, could be applied to support our investigations of reality, leading Aristotle to analyze the physical world in accordance with Greek grammatical categories (Allan 2007: 44). Grammar was, so to speak, a window on the world. This ambitious instantiation of applied linguistics remained influential for well over a thousand years, with the mediaeval 'speculative' grammarians seeing grammatical structure as mirroring God's creation – Latin *speculum* means 'mirror' – (Allan 2007: 155–157). Classical thinkers and their successors also saw language and logic as structurally linked, so an understanding of Greek and Latin grammar was taken to provide a basis for sound argument (Allan 2007: Ch 3, 4). Similar views were held by 17th- and 18th-century rationalist philosophers: Leibniz declared that a tidied-up language, in which meanings could be expressed unambiguously, would permit precise and conclusive logical discussion, a claim echoed 300 years later by Bertrand Russell (1919: 172). And the belief that grammar in some way reflects the structure of the human mind informs the thinking of present-day generative grammarians.

A variant of the 'window on the world' belief is found in the notion of linguistic relativity. Languages, through their grammars, focus on different aspects of reality. Indo-European languages, for instance, typically use the verbal system to express time relations, but this is far from universal. Many languages privilege evidentiality, with choices of verb form specifying, sometimes quite elaborately, how a speaker came to know what he/she is reporting. Other languages grammaticalize location, social status, kinship, and many other disparate concepts. It can be argued that the kinds of meaning preferentially highlighted by a language's grammar may both reflect and shape its speakers' perceptions of their world. This view was explored by philosophers such as von Humboldt in the early 19th century, and by American anthropological linguists, notably Sapir (1921) and Whorf, a hundred years later. For recent research and discussion informed by cross-linguistic analysis, see Gentner and Goldin-Meadow (2003).

Grammar may not after all tell us about the nature of physical reality; but language permeates our lives, and our knowledge of its workings can contribute to better-informed analyses and decision-making in many fields. In general, for a model of language to support investigation

of a real-world problem, two things are necessary. The model must give appropriate linguistic information, and it must do so in terms which can be applied effectively to the problem concerned. This is not always straightforward. Brain research is a case in point. We know that language acquisition, especially of grammar, appears to be partly dependent on maturation, and may not be fully possible after a certain age range, the hypothesized 'critical period' (for discussion, see Saxton 2017: Ch 3). And we know from studies of brain damage and from modern work on neuro-imaging that linguistic capacities such as grammatical control, vocabulary recall, comprehension, or fluent production are at least partly associated with specific areas in the brain. But the data so far assembled is complex and difficult to analyze. For the moment, we understand relatively little about the physical correlates of our mental and linguistic representations of the world, and cannot tell how far our grammatical analyses of language in use correspond to the structure of language in the head. It is not clear, therefore, what kind of model can contribute to current brain studies, although artificial neural network research and grammatical modelling are increasingly seen as mutually beneficial (Linzen 2019).

In a related but more immediately practical area, clinical linguistics, it is easier to see how linguistic modelling can support professional activity, as in Crystal's account (2001: 675) of an interesting case.

> In the field of grammar, it is easy to spot such morphological errors as *mouses* or *tooked*; far less easy to work out what is going on when there are problems with sentence structure. One six-year-old boy was able to say such sentences as *That car is red* and *My car is in the garage*, but could not be persuaded to say *That's a red car* or *My red car*. Asked 'Is that a red car or a yellow car?' he would become non-fluent and produce such strings as *A car – a red*, losing control of the clause structure as a whole. The problem turned out to be a difficulty in simultaneously using a developed noun phrase within a clause: as long as the noun phrase consisted solely of a determiner + noun, there was no problem. But asked to insert an adjective (or any other extra element), and the whole sentence structure broke down. To appreciate the nature of this difficulty requires the analyst not only to make an appropriate syntactic analysis but also to appreciate the implications of a syntactic hierarchy for mental processing. Both syntactic and psycholinguistic perspectives are essential.

Crystal's example shows that a grammatical model is needed to illuminate problems of language development, but that the model must stay close to the surface of the language (see also Stojanovik, Perkins, and Howard, this *Handbook*, Volume 2). A more abstract analysis – perhaps that of a generative grammarian – might be less practically applicable. This is so for many other applications of grammatical models to real-world problems, such as forensic linguistics (Semino, this *Handbook*, Volume 2), education, or language teaching (see the following discussions). In some areas, on the other hand, more abstract models may be relevant, for example, in approaches to machine translation or automatic text decoding.

Grammar and education: standardization and correctness

For many people, linguistics and everyday life intersect through education. Most societies have a language that is preferentially used for administration and cultural transmission, and the study of this language is generally prominent in school curricula. It may be a high-status classical or foreign language, like Sumerian in Mesopotamia, Classical Arabic in the Islamic world, or the former colonial languages in Africa. In mediaeval Europe, Latin dominated the educational syllabus through the *trivium* of grammar (correct language use), dialectic (language

for valid argument), and rhetoric (language for effective public communication). Even after a classical or foreign language has outlived its central roles, it can retain long-lasting educational prestige, as happened with Greek and Latin in Europe.

More often, of course, a society's public affairs are conducted in a language currently spoken by its members. Regional and social differences in usage can cause communication problems, promoting standardization, whereby a single variety comes to be used in administration, legislation, business, education, and publishing. This may be the dialect of a class which has become socially and politically dominant, as in Britain and many other countries. Or it may be partially a deliberate creation, codified to facilitate communication where no single standard has arisen naturally.

The status and utility of a standard language can generate powerful social and institutional pressures. To achieve literacy and operate effectively in society, non-standard speakers may have to learn a new dialect. Language can thus become a social filter, with higher education and many career paths closed to those who fail to master the prestige variety, whatever their other strengths. Grammar often has a starring role in this connection. Grammatical correctness, after all, has a powerful symbolic value, implying that one can obey rules and respect authority. Even speakers of the standard variety must acquire the written code, which is effectively a new language for everyone with its own grammatical features. In French, to take an extreme instance, the orthography preserves morphological distinctions which have largely disappeared from speech: so French-speaking schoolchildren must actually develop an explicit knowledge of older French grammar in order to be able to spell correctly. Without this, they cannot know whether to write, for instance, [aʃte] as *acheter*, *acheté*, *achetés*, *achetée*, *achetées*, *achetai*, *achetais*, *achetait*, or *achetaient* – forms of the verb for 'to buy', which are pronounced identically by most younger speakers of standard European French.

Elevating one variety to standard status can devalue others, which become stigmatized as 'incorrect' forms of speech whose users 'have not learnt correct grammar' or 'cannot be troubled to get things right'. This attitude is common in Britain, although all English dialects descend from the various Germanic languages of the mediaeval invaders and, if well-preserved, retain systematic grammars of their own. This can be easier to accept for 'remote' dialects. Someone from Oxfordshire who says 'I needs them papers what I give you yesterday' is likely to be criticized for 'failing' to use standard grammar. In contrast, a Scot who says 'I'll no can see yez the morn' ('I won't be able to see you [plural] tomorrow') is more readily seen as speaking an independent variety with a separate rule system. In fact, the Oxfordshire speaker, like the Scot, uses historically rooted forms which are regular and correct in his or her dialect, however much they may upset the standard speaker next door.

Even within a standard variety, different regional, social, occupational, and generational groups have different patterns of usage. This can provoke judgements of correctness ('It's *different from*, not *different to*'). In such cases, the favoured alternative is often the more formal, written, or older variant: people in literate societies characteristically consider formal written language more correct than speech, and regard language change as evidence of falling standards. Such public perceptions, often fostered by education, view languages as monolithic structures, governed by rules codified by grammatical authorities which should be obeyed in the same way as, say, traffic regulations. In fact, since language 'rules' are essentially descriptions of observed regularities, they need to take account of such variation and change as exists. Correctness and incorrectness are therefore perhaps best defined not in either/or terms, but in respect of appropriacy. A form or structure may be perfectly appropriate (i.e. correct) in casual speech and inappropriate (i.e. incorrect) in formal writing; or normal in a lecture and out of place at a dinner table; or natural in a teenager's speech but peculiar in her mother's; or unremarkable in

television advertising but unacceptable in a business letter; or (in some languages) appropriate when used by a woman but not by a man, or vice versa. Reliable judgements of appropriacy are, however, becoming more difficult as oral and written media interpenetrate and influence each other. With an international language such as English, matters are further complicated by the existence of local standards with their own norms (not always codified), and by lingua franca use, where norm-based usage takes second place to communicative effectiveness.

Simplistic views of correctness are reinforced by prescriptivism. Standard languages accumulate rules devised by individuals who believe that their language needs regulating, tidying, or protecting against change. Such pronouncements, enshrined in usage manuals, school grammars, and publishers' style guides, tend to oversimplify or misrepresent linguistic reality. Many prescriptive rules for English were formulated in the 18th and 19th centuries, often in imitation of Latin grammar. Typical examples are the old condemnation of 'split infinitives' like *to boldly go*, or the superstition that a preposition is a bad word to end a sentence with, or the decree that *less* should not be used with plural nouns. Logic is often invoked: a disfavoured utterance like *John and me got lost* (typical of informal standard British English) might be criticized because the 'nominative' (subject) form *I* is 'logically' required. However, grammatical case systems, where they exist, vary widely across languages. The English choice between *I* and *me* depends on syntactic environment and level of formality, and is not parallel to pronoun usage in for instance Latin, Russian, or German. To condemn *John and me got* because 'subjects are nominative' is rather like insisting that penguins should get up in the air because 'birds fly'. Since many prescriptive rules conflict with natural usage, their acquisition requires education and effort; once acquired they become shibboleths, differentiating the elite from the rest ('I'm better than you because I get my pronouns right'). Admitting that these rules are mistaken or unimportant would mean abandoning such easy claims to superiority, and accepting that the effort spent learning them was wasted. Not surprisingly, therefore, prescriptive rules have long lives.

Languages always have far more constraints and conventions than are actually needed for communicative efficiency, and substantial educational time and resources can be devoted to requiring a level of correctness which goes far beyond any practical value that standardization may have. This can lead to overemphasis on grammatical forms and the associated often arcane terminology, at the expense of more constructive teaching. Reactions against this, and doubts regarding the value of explicit knowledge about grammar, can bring about redefinitions of the aims of language instruction, and the sidelining or abandonment of grammar teaching. In due course, dissatisfaction with the continuing poor quality of school-leavers' command of the standard language may then provoke calls for the return of formal grammar instruction. Educational policy on grammar teaching can thus swing between opposed positions, with changes driven sometimes more by the sociopolitical stances of those in authority than by linguistically well-informed decision-making. (For English, see the appendix to Crystal 2017.)

However this may be, knowledge of a standard language, spoken or written, is advantageous, and children will clearly benefit from accurate information about important aspects of its grammar that they find challenging. And of course learning about the workings of the mother tongue has general educational value in the same way as, for instance, studying biology. Perhaps more so: as Walter (2008) points out, while children are taught about photosynthesis, no child photosynthesizes; but all children use language. Soundly based grammar teaching can have other important social benefits. It can counteract the devaluation of non-standard dialects and their speakers by providing a more accurate view of language variation. Through a focus on the pragmatics of language rather than small-scale questions of correctness (Crystal 2017), learners can come to see (as did mediaeval students of rhetoric) how grammatical

choices can structure the presentation of information, and thus serve to emphasize, persuade, or suggest implications. Selecting an active, passive, or nominalization structure in English, for example, can foreground, background, or conceal agency, and thus manipulate a hearer's or reader's perception of facts very considerably. In addition, linguistically informed legislators and administrators are better equipped to manage social policy in important matters such as the treatment of immigrants (Wee, this *Handbook*, Volume 2), the use of appropriate language tests for immigration and citizenship applications (McNamara et al. 2019, O'Sullivan, this volume, Baynham and Simpson, this *Handbook*, Volume 2), or the provision of adequate translation facilities in criminal trials (Grant and Tayebi, this *Handbook*, Volume 2).

Grammar in foreign language teaching[1]

Foreign languages often figure prominently in education, for both cultural and practical reasons. And in today's interconnected world, more and more people need other languages – especially world languages such as English, Mandarin, Arabic, Spanish, or Russian. For many such people, language instruction is necessary or supportive. However, language study is time-consuming, expensive, and often difficult. Any language contains grammatical features which are hard to master, for instance because of their complexity, like Russian noun morphology, or because they signal meanings for which the mother tongue may encode no equivalent, like English article systems. For instruction to be cost-effective, important questions of principle need to be addressed. Which features of the new language must be mastered for effective language use, and what input and practice activities will best enable learners to internalize them? How much correctness should be expected of learners, and how much can actually be achieved? What grammatical model is appropriate? Is language aptitude an important consideration? Opinions on such matters have varied widely, and continue to do so. The learning and teaching of grammar, in Larsen-Freeman's (2003: 9) words, is 'the vortex around which many controversies in language teaching have swirled'.

The choice of a grammatical model is partly a non-question, although theoretical perspectives on the nature and acquisition of grammar may have some apparent pedagogic relevance. Views about whether UG remains available for new languages can shape opinions about what is teachable and learnable (for discussion, see the contributions to *Studies in Second Language Acquisition* 2009/2). Generative and cognitive models which merge grammar and lexis (Wakabayashi, this volume; Winter and Perek, this volume) can appear to support 'lexical' approaches, as can usage-based models which see grammatical knowledge emerging from lexical input. However, language teaching rarely espouses specific theoretical models, and attempts to import, say, transformational, construction, or systemic functional frameworks into the classroom have had little significant impact. Theoretical grammarians seek generalizations which apply to languages and to language as a whole, while language learners are more concerned with language-specific features than with fitting these into higher-level generalizations. The most useful models for teaching purposes, therefore, are arguably descriptive rather than theoretical: the close-to-the-surface pictures offered for instance for English by Quirk et al. (1985) and Huddleston and Pullum (2002) or by the smaller grammars used by teachers and students.

There are, however, important differences between descriptive and pedagogic grammars. Pedagogic accounts of languages are necessarily economical, reflecting time constraints on teaching and learning. Overall grammatical descriptions can therefore only provide menus, from which high-priority elements can be selected and mediated in accordance with pedagogic criteria (Hulstijn 1995; Swan 1994). Further, a pedagogic grammar does not describe

a language from a neutral standpoint. Ideally, it provides data which its target learners do not already possess, bypassing or backgrounding structural, semantic, and pragmatic information which is easily transferable from the mother tongue. English-speaking learners of Italian need far less information about articles than do Poles. Turkish speakers find Korean SOV word order unproblematic. French-speaking students of English have less difficulty than Japanese learners in positioning relative clauses. German speakers, unlike Farsi speakers, will take it for granted that *That's the man who he sold me the bike* is not grammatical in English. Cross-language similarities, while on balance advantageous, are however sometimes misleading, as with 'perfect' tense use in Western European languages. This can extend to questions of pragmatic appropriacy. For example, unlike many languages, English generally avoids imperatives in polite requests, preferring interrogatives: 'Can/Could you tell me the time?' is decidedly more acceptable than 'Please tell me . . .' The very grammar-vocabulary boundary may be drawn differently for different learners. English prepositions and their uses are largely vocabulary problems for Swedes, whose language also has a range of prepositions; for Finns, whose language expresses the relevant notions more generally by noun-endings, prepositions are a difficult grammatical category. The considerable body of accumulated professional knowledge of such matters is gaining greatly in scope and precision with the aid of corpus-based contrastive interlanguage analysis (Le Bruyn and Paquot 2021).

Methodological questions are especially intractable. (For a survey of past and present views, see Thornbury, this volume.) Is grammar teaching effective, as many teachers believe? If it is, does explicit rule-learning help? For classical language study, this was not necessarily an issue. In the time needed to write a Latin sentence, a rule like 'use subjunctives in indirect questions' could easily be recalled, and the appropriate form retrieved from a memorized paradigm. But in speaking modern languages, structures must be chosen and forms recalled far too quickly for conscious control to operate. Is explicit knowledge of structure a valuable starting point nonetheless, supporting learners as they move from declarative to procedural knowledge, progressively internalizing rules, and reducing conscious attention to form? If so, how should structures be sequenced and presented for teaching, and should explicit grammatical knowledge be arrived at deductively or inductively? What part should systematic practice play, and how should correction be approached? How useful is it for students themselves to access the grammatical information in learners' grammars and dictionaries?

Alternatively, does grammar learning largely follow not from explicit instruction and study, but from the unconscious operation of natural acquisition mechanisms during input-processing? Is there any sound evidence for the idea of a natural acquisition order in foreign language learning (Swan 2018)? And is learning then best supported not by syllabus-based teaching, but by incidental attention to form during communicative activity, as many theorists currently believe? Or indeed, given the complexity of the factors affecting learning (Ellis and Larsen-Freeman 2006), is it simply impossible to make useful judgements in this area?

Approaches to these questions are often seen as involving pendulum swings between opposing stances. Although the metaphor is overly simple, it has some validity. As a formal code, used to convey meaningful messages, a language necessarily has a dual character. Reflecting this, language-teaching philosophies oscillate between the poles of form and meaning, control and freedom, imitation and expression, knowledge and skill, learning and using. Such successive positions may be heavily dependent on hypotheses, sometimes promoted with more assurance then they merit (Swan 2018). The role of grammar-teaching – central, marginal, or non-existent – has tended to depend largely on the current location of the pendulum. However, reassuringly solid evidence does now exist that grammar instruction can support acquisition (Norris and Ortega 2000), despite some earlier assertions to the contrary (e.g. Krashen 1981).

Regardless of the prevailing theoretical winds, it may often be more constructive in this area to think in terms of specific answers to specific questions. Which important features of language A's grammar may be learnable by speakers of language B through natural acquisition mechanisms, and which may require explanation and perhaps systematic practice? Are some grammatical elements altogether too complex for instruction to be effective? Mandarin question formation, the position of French object pronouns, Spanish tense choice, English noun compounding, Russian noun morphology, and Japanese honorific particle use, for instance, differ considerably in these respects. In Hulstijn's (1995) words, 'Not all grammar rules are equal.' Adequate exposure is necessary for natural acquisition mechanisms to operate: is this available in the instructional context? Are learners resident in a country where the language is spoken; or are they, like many of the world's language learners, getting lessons for three hours or so a week in a secondary school, with or without additional online exposure and practice? Experiential learning models like task-based language teaching may offer valuable support in high-exposure situations; they may be far less appropriate in many other contexts (Swan 2005); or for teaching languages which, unlike English, require beginning students to acquire parts of complex morphological systems.

Despite substantial progress, we still lack a robust model of instructed language learning which would relate what is taught more reliably to what is acquired, and pendulum swings will clearly continue. Their direction and amplitude may well change. As in mother-tongue education, foreign language teaching has frequently taken a high level of grammatical accuracy as an unquestioned target. This largely unrealizable aim has contributed to much ill-focused and unsuccessful language teaching worldwide, with excessive attention often being devoted to grammatical correctness at the expense of effective language use. Consequently, countless learners have notoriously left school after years of instruction with little or no useful command of the relevant language. At the level of theory, this stance has frequently led to the rejection of successive approaches which have been seen as 'failing' because they have not reliably achieved carry-over from accurate classroom performance to correct spontaneous use (Swan 2005: 3.3).

Fortunately, there is a growing tendency to question the validity of a one-size-fits-all approach which sets native-speaker-like norms as an appropriate target for all learners, and which sees failure to approximate such norms in 'deficit' terms (Cook 1986). A focus on language instruction in terms of its fitness for purpose would more usefully target an effective command of a stabilized interlanguage, asking the following:

- What will a given learner need the language for, receptively and productively? Holiday travel, for example? Writing academic papers? Something in between?
- What variety of the language is an appropriate model for this learner?
- How much grammatical correctness will he or she need?
- Which grammatical elements should he or she therefore master, and which can be downplayed or ignored?

Much effective non-native language use involves limited native-speaker-like grammatical accuracy. Undoubtedly certain grammatical features, standard or not, contribute more than others to communicative success in these cases. Current studies of intelligibility in lingua franca exchanges, coupled with investigation of limited codes such as 'basic varieties' (Klein and Perdue 1997), pidgins, and creoles, may well bring researchers closer to an empirically-based listing of such key features for various languages. This could facilitate the production of better-focused instructional materials for learners with different levels of need for grammatical

correctness, and especially for the many who require only a limited but effective command of a language.

An important question is: how far are research findings actually applied by practitioners? In this field, the answer may be disappointing (Marsden and Kasprowicz 2017). The readers of relevant academic publications are principally other academics. Teachers' associations do offer some access to theorizing and research through their conference programmes and newsletters, and teachers who are able to exploit these resources may teach more effectively as a result. But most of the world's language teachers work in public education, largely in developing countries, and generally have little or no contact with research-based views, which might in any case not relate well to their most pressing problems. These teachers' work may be tightly constrained by traditional practice, institutional requirements, examination syllabi, locally approved textbooks, and/or political and social influences on methodological choices. Individual strengths and weaknesses may also shape classroom practice: teachers with poor practical language skills often find grammar an attractive focus, as being more within their grasp and more easily teachable and testable than other aspects of a language (see Swan 2002 on bad reasons for teaching grammar).

In any case, effective progress does not depend on a one-way information flow from researcher to practitioner. The value of well-designed classroom research by practising teachers is certainly well recognized, but academic applied linguists are often less aware of the important contribution of teaching professionals in such areas as syllabus design and course construction (see Swan 2018 on the 'invisible practitioner'). And it is all too easy to dismiss local teaching approaches which appear outmoded or incompatible with currently favoured theoretical positions, without properly evaluating the accumulated professional experience and educational traditions in which these approaches may be grounded.

The future

Our understanding and modelling of grammar and its acquisition will benefit from continuing research on the neurological bases of language. Deeper and wider-ranging corpus-based studies will enhance our knowledge of individual languages and language behaviour. World languages will continue to evolve local varieties with their own grammatical norms. Hopefully, these developments, along with the reduced domination of written standards, will foster more enlightened public and institutional attitudes to grammatical correctness, with the educational and social benefits that have been suggested. Changes in attitudes to correctness may have consequences, too, for the process and product of foreign language teaching. In any case, the instructional landscape is changing rapidly, thanks to the many IT-based opportunities for exposure to and engagement in authentic language use, and the growth of effective online programmes for individual grammar instruction. This may well lead, in only partly predictable ways, to substantially reduced dependence on classroom-based teaching and the associated methodologies.

Summary and conclusion

Grammatical analysis may not, as some classical philosophers believed, give us information about the world. Nor does it directly elucidate our mental processes. Nonetheless, the cluster of mechanisms that we call 'grammar' is central to language, and language enables us to conceptualize and theorize about our world, to progressively expand our knowledge, and to consolidate and pass on our discoveries through cultural transmission. Consequently, the better

we understand grammar – its nature, its functions in language and languages, its acquisition, its instantiation in the brain – the better our grasp in likely to be of the many human activities and concerns in which language is involved, from foreign-language teaching at the most practical extreme to the very nature of consciousness itself.

Related topics

clinical linguistics; cognitive linguistics; discourse analysis; forensic linguistics; generative grammar; language teaching methodology; neurolinguistics for language learning; second and additional language acquisition across the lifespan; sign languages; sociolinguistics for language education; systemic functional linguistics; world Englishes and English as a lingua franca

Note

1 I use 'foreign language' as a convenient blanket term; distinguishing between 'foreign' and 'second' languages is not relevant to my discussion.

Further reading

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Dąbrowska, E. (2004) *Language, Mind and Brain*, Edinburgh: Edinburgh University Press. (Brings evidence from a wide range of languages to bear on the question of psychological and neurological constraints on theories of grammar)

Johnson, K. (2013) *An Introduction to Foreign Language Learning and Teaching*, 3rd ed., London: Routledge. (Excellent survey of the field)

Merriam-Webster's Concise Dictionary of English Usage (2002), Springfield, MA: Merriam-Webster, Incorporated. (Comprehensive, informative, non-prescriptive usage guide)

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16
Lexis

Joe Barcroft and Gretchen Sunderman

A history of the area

The term lexis, from the ancient Greek for 'word', refers to all the words in a language, the entire vocabulary of a language.[1] Plato and Aristotle spoke of lexis in terms of how the words of a language can be used effectively. Plato focused on different types of diction and distinguished between *mimesis*, speech involving imitation, and *diegisis*, or simple narration not involving such imitation (see e.g. Gennette 1979). In his discussion of style in *Rhetoric*, Aristotle distinguished between *lexis graphikê* and *lexis agonistikê*, the former referring to 'the most precise style . . . to be used in compositions designed for a careful reading' and the latter, which consisted of two aspects (*êthikê* and *pathêtikê*), referring to 'the style of plays written for a full performance on the stage as opposed to those designed for reading' (Sonkowsky 1959: 260). In *Categories*, Aristotle also worked to describe numerous properties words, including semantic properties of words ('A man and an ox are both "animal"'), words that are synonymous, homonymous, and so forth (see Edghill online).

Many of the important contributions of early Indian linguists, such as Pāṇini, Patañjali, and Bhartrihari, concerned basic properties of words, including the notion of what is invariant (*sphota*) and what is variant (*nāda*) in words and other types of linguistic form. Such work also had an impact on Saussure, a professor of Sanskrit himself, and the development of structural linguistics. Consider, for example, the relationship between the notions of *sphota* and *nāda* and Saussure's distinction between the 'signifier', or the (spoken or written) form of a word, and the 'signified', the mental concept of the word (Saussure 1916).

In the history of modern linguistics, since approximately the middle of the 20th century, the treatment of lexis has evolved substantially by acknowledging to a greater degree the important and central role of words and lexicalized phrases in the mental representation of linguistic knowledge and in linguistic processing. Within generative linguistics, individual words and the syntactic constraints they project have come to play an increasingly important role. For example, lexical structure needed to be 'represented categorically at every syntactic level' (Chomsky 1986) in generative-transformational grammar (e.g. the verb 'throw' requires a noun phrase, as in *She threw the ball*, as opposed to the ungrammatical **She threw*). In cognitive linguistics, words and lexicalized chunks play a central role. As a final example, in Construction Grammar, words and lexical phrases have taken centre stage completely because words and

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lexicalized phrases, as well as syntactic frames in which lexical items can be inserted (e.g. *X causes Y to . . .*), are viewed as form that can be attached to different types of meaning, blurring previously held distinctions between the domains of lexis and syntax.

Theoretical linguists, psycholinguists, and neurolinguists who study lexis are in a unique position because they focus on the place in linguistic analysis, language learning, and language processing where linguistic form (phonological or otherwise) meets meaning at a basic level.

Key concepts

What is a word?

We often distinguish between what it means to know a word and how we access that information. The mental lexicon is the storage repository for words and the information we know about those words; it is our internal dictionary. The mental representation of a word contains information about the spelling, pronunciation, grammatical category, and meaning of the word. But what exactly counts as a word? If we think of a word like *builders*, there are at least three meaningful parts to the word, or morphemes. The free morpheme *build* (a verb) is then combined with a derivational bound morpheme *-er* and thus changes the word to a noun, *builder*. An inflectional plural morpheme *-s* is then added to finally arrive at *builders*. However, although orthographically an *-s* is added, phonologically the sound is /z/, an allomorph for plural morpheme *-s*. At the most basic level, we know that *builders* are people who build things.

Formal properties of words

Words are linguistic form, but the nature of that form and the physical source that we use to create that form can vary. In spoken languages, we use our vocal tract to produce units of sound, or phonemes, by contrasting features such as +/− voicing (e.g. *ban/pan*). In signed languages, we use hands to produce visual elements that function like phonemes by contrasting features related to location, movement, and hand shape. For example, location distinguishes between the words ‘mother’ (thumb on the chin) and ‘father’ (thumb on the forehead) in American Sign Language. In addition to these sources of lexical form, writing systems and tactile forms of communication, such as Braille, allow us to produce and perceive words using alternative means of distinguishing between different lexical forms (graphemic for writing and tactile for Braille).

Semantic properties of words

A basic characteristic of vocabulary is that meaning and form do not always have a one-to-one correspondence. Consider the following items:

die
expire
pass away
bite the dust
kick the bucket
give up the ghost

The six examples all have the meaning ‘to die’. However, several of the items contain more than one word. In some languages, especially in English, meanings can be represented by multiple

words operating as single units. To accommodate the fact that both single and multi-word units can realize meaning, we use the terms *lexeme, lexical unit*, and *lexical item*. These interchangeable terms are all defined as 'an item that functions as a single meaning unit, regardless of the number of words it contains'. Thus, all of the examples are lexemes with the same meaning.

Cases where several forms map onto the same meaning are referred to as *synonymy*. Synonymy is common in languages, but so is the converse, where a single form has several meanings. This can be called either *polysemy* or *homonymy*. The distinction usually revolves around whether the different meaning senses are related or not. *Chip* is usually considered polysemous, in that a *chip* of wood, a computer *chip*, a potato *chip*, and a poker *chip* all have the same underlying concept of being small, thin, and flat(ish). A financial *bank*, a river *bank*, and the *banking* of an airplane when it turns are usually thought of as homonyms, as the meaning senses are totally unrelated.

Often a general area of meaning is covered by a certain set of related words and is referred to as a *semantic field* or *semantic category*. 'Food' is an example, and the names of various fruit, grain, meat, and so on make up the *lexical set* of words describing this semantic field. In some cases, the meaning of the words in the lexical set is defined by their relationships to the other words in the set. This is particularly true with gradable adjectives, as *warm* does not refer to an absolute temperature but is cooler than *hot* and warmer than *lukewarm*. For instance, 25°C would be considered a warm summer day in Britain but would be positively cool in a Saudi Arabian summer!

Lexical characteristics of words

What happens in our minds when we see the string of letters making up the word *builders*? Lexical access is the term used to refer to the process of retrieving those words from the lexicon, our mental store of words. Many factors can speed up or slow down the retrieval process. For example, word frequency (how often a particular item appears in a corpus of language data) is highly related to how easily a word can be recognized (see e.g. English Lexicon Project, Washington University, in St Louis, http://elexicon.wustl.edu, a free database that contains lexical characteristics, along with reaction time and accuracy measures from two different experiments, visual lexical decision and naming, studies of 40,481 words and 40,481 nonwords, Balota et al. 2007). On the data retrieved from the website, the word *builders* has a frequency of 2006 and it takes on average 677 ms (with 94% accuracy) to recognize it is a word in a lexical decision task. Compare with a low frequency eight-letter word like *flautist*. *Flautist* requires an average of 1,000 ms (with 38% accuracy) to recognize; its word frequency is 24. The frequency effect is quite robust in the process of word recognition.

Frequency is only one of many lexical characteristics that can affect lexical access. The number of derivations a word has (word family size) can also affect speed of processing. Another is the number of orthographic neighbours a word has. An orthographic neighbour is any word differing by a single letter from the target word, respecting length and letter position (Coltheart et al. 1977). The ability to recognize a word can be affected by the number of neighbours it has. For example, based on the ELP database, the three-letter word *ink* has a frequency of 5,593, whereas the three-letter word *mad* has a higher frequency of 17,811. Based on frequency alone, we would assume that *mad* would be recognized faster than *ink*. However, the word *mad* comes from a popular neighbourhood (*bad, sad, mat, map*, etc.). Its orthographic neighbour count is 17, compared to *ink*'s 3. Indeed, *ink*, on average, is recognized slightly faster than *mad*, possibly due to the competition the word *mad* must overcome to be recognized. Interested readers should consult the ELP database, which contains many other lexical characteristics of words that may affect processing.

Regional variation in words and lexical phrases

Examples of regional variation at the lexical level abound in languages all over the world. Sometimes the variants may be similar forms, and the number of variants may be limited. In Spanish, for example, 'tomato' is *jitomate* in Mexican Spanish and *tomate* in most of the rest of the Spanish-speaking world. These two variants are clearly related in form. Other variants may have completely distinct forms. 'Popcorn' in Spanish might be expressed as *palomitas (de maíz)* (Spain, Mexico), *cabritas (de maíz*) (Chile), *canguil* (Ecuador), or *cancha* (Peru). Regional lexical variation is also extensive across numerous semantic fields. For example, the concept of 'cool' (meaning 'good' or 'interesting' in English) might translate as *padre* in Mexico, *guay* in Spain, *chévere* in Colombia or Ecuador, *bacán* in Perú, and so forth. Lexical phrases also have variants. For example, an idiomatic expression such as *estoy en el quinto cielo* (literally 'I am in the fifth heaven') might be used to express 'I'm in seventh heaven' in Spain but not in Mexico.

In English, regional lexical variants are also widespread. Some fairly well-known British/American English lexical variants include *football/soccer*, *lorry/truck*, *lift/elevator*, *flat/apartment*, and *biscuit/cookie*, but we also find perhaps less well-known variants, such as *bonnet/(car) hood*, *paraffin/kerosene*, *silencer/muffler*, *dummy/pacifier*, and *flyover/overpass*. Variants on multi-word phrases are not uncommon either: *to faff around/to goof off*, *to be chuffed/to be psyched*, and *to put your skates on/to get a move on*. Of course, regional English lexical variants are in not limited to British/American varieties. To provide one example, consider the North American English variants *pop*, *soda*, and *coke* (for any carbonated beverage) spoken in the Midwest, North, and South of the United States, respectively.

Critical discussion of selected current issues

In this section we provide an overview of the development of theory and research focus on two of the many lines of research related to lexis: (1) second language (L2) vocabulary learning and instruction and (2) the bilingual mental lexicon. We do so based on space limitations and acknowledge that there are numerous other topics related to lexis that we could have selected.

L2 vocabulary learning and instruction

Vocabulary learning and vocabulary knowledge are central to both first language (L1) and L2 language learning. In fact, a substantially high percentage (such as 95% and 98%) of words in text and spoken discourse need to be known to achieve reasonable levels of comprehension (see Nation 2006, for more on this issue). Words are the building blocks of language, and linguists increasingly point to the inextricable role of words and lexical phrases in the projection, or construction, of syntax. Vocabulary is also indispensable when it comes to successful communication. Compared to the impact of accented speech or minor syntactic violations (e.g. subject-verb or gender agreement), lexical items that learners produce can prove to be a much greater impediment to successful communication. Consider, as one example, an L2 Italian learner ordering in a restaurant wishes to say, in Italian, *Io voglio i gamberetti*, 'I want the shrimp.' If the learner says *Io volere i gamberetti*, literally meaning 'I to want the shrimp' (and sounding something like 'Me want shrimp' in Italian), the learner most likely will receive their desired dish in spite of the syntax. On the other hand, if the learners says *Io voglio le gallete*, 'I want the crackers,' something very different might be served because of the lexical item produced.

'Receptive versus productive' vocabulary knowledge and methods of testing

Somewhat related to the issue of vocabulary size is the question of how one chooses to test vocabulary. When testing via translation, should one provide the learners with the L1 word and ask him or her to produce the L2 word, or vice versa? Traditionally, a distinction has been made between 'receptive' and 'productive' vocabulary knowledge in the study of L2 vocabulary, the former being much larger than the latter. Some have maintained that the receptive/productive distinction may correspond to different systems. Melka (1997: 101–102), however, considered the possibility of a single lexical store being accessed in different ways: 'It is certainly not clear whether [reception] and [production] ought to be considered as two separate systems dependent on each other, or rather as one unique system (one lexical store) used in two different ways, receptively or productively.'

If the 'receptive-productive' distinction concerns a single store being accessed in different ways, this situation has important implications for L2 vocabulary testing. Performance on a more receptive vocabulary test may be higher simply because the testee is provided with a greater amount of the target word form and, in essence, has less to 'fill in' regarding the form of the word in question. Imagine, for example, that the word for 'circle' in some (imaginary) L2 is *glinalor* but the learner has retained only *gl-n-*. An L1-to-L2 translation test would demonstrate that the learner has not reached complete knowledge of the target word form, whereas a more receptively oriented test, such as L2-to-L1 translation, would provide the entire word form for the learner, making it easier to 'fill in' what is missing in word form knowledge.

Word-based determinants of learnability

Studies on word-based determinants of learnability have isolated specific properties of L2 words that make them more difficult or less difficult to learn. Ellis and Beaton (1995), for example, found the learnability of L2 words to be affected by word-based factors, such as word length and degree of phonological similarity between L1 and L2 words. Longer words and L2 words that were less phonologically similar to L1 words were more difficult. In another study, Laufer (1997) demonstrated how 'deceptive transparency' can make it more difficult to learn L2 words. *Deceptive transparency* refers to when a learner incorrectly thinks he/she knows the meaning of an expression because they know words with in it, such as if a learner of L2 English were to understand the expression 'break the ice' in its literal sense instead of in its idiomatic sense.

Incidental and intentional vocabulary learning

As attention to the importance of vocabulary increased within the field of SLA, one issue and area of debate that began to emerge during the 1980s and 1990s was that of incidental versus intentional vocabulary learning and its pedagogical counterpart, indirect versus direct (explicit) vocabulary instruction. *Incidental vocabulary learning* refers to learning new words from context without intending to do so, such as when picking up new words during free reading or during a conversation without intending to do so. *Intentional vocabulary learning*, on the other hand, refers to situations in which learners actively and consciously try to learn new word, such as when looking at word-picture pairs on a screen and attempting to learn them or completing activities in a workbook in an effort to learn a set of target L2 words.

Relatedly, *indirect vocabulary instruction* refers to instructional activities designed to promote incidental vocabulary learning and are known as indirect vocabulary instruction, such

as when an instructor asks learners to read for meaning or complete an information-exchange task without asking the learners to attempt to learn new words provided in the text or materials for the task. *Direct vocabulary instruction*, on the other hand, refers to activities designed to teach new vocabulary explicitly, such as using a picture file, a word-definition matching task, or picture-labelling task to teach learners new words. Note also that the *incidental-intentional* distinction should not be viewed as a dichotomous concept only, nor should the *indirect-direct* distinction in instruction (Haynes 1998).

On the whole, studies have indicated limited new word gain or 'pick up' of new words in contexts of purely incidental L2 vocabulary learning (see e.g. Horst et al. 1989). However, other studies, such as that of Horst (2005) in which learners picked up over half of the target words after extensive reading, have demonstrated larger gains. Increasing the number of exposures to target words in a text is one way of increasing the amount of word gain. Rott (1999) demonstrated that six exposures led to improved learning as compared to four or two exposures. Other studies have used higher numbers of repetitions but have failed to ensure complete (incidental) learning of target words. Waring and Takaki (2003), for example, found that eight exposures led to only a 50% chance of the learners being able to accurately match the word to its meaning a few months later.

Other studies (e.g. Barcroft 2009; Hulstijn 1992) have demonstrated that L2 vocabulary learning during reading improves if learners are simply instructed to attempt to learn target words and told that they will be tested on them, pointing to the strong impact of maintaining an intentional orientation toward L2 vocabulary learning. Other research on intentional L2 vocabulary learning has isolated variables that lead to improved vocabulary learning in this context. Prince (1996) compared translation-based L2 vocabulary learning with presenting L2 vocabulary in the context of sentences and found translation-based learning to be more effective. Allowing learners opportunities to attempt to retrieve target words on their own also has been found to increase learning (e.g. Royer 1973). Also, varying talkers, speaking styles, and speaking rates during intentional L2 vocabulary learning have been found to substantially improve intentional L2 vocabulary learning (Barcroft and Sommers 2005; Sommers and Barcroft 2007).

Lexical input processing and vocabulary learning

For over more than two decades, a growing body of research has focused on lexical learning from the perspective of input processing. *Lexical input processing (lex-IP)* refers to how learners allocate their limited processing resources in different ways when they are exposed to lexical items (words, multi-word phrases, and so forth) in the *input*, or samples of a target language to which learners are exposed. Barcroft (2015) reviewed theoretical developments and research related to lex-IP as one of multiple levels or types of input processing (*multi-level input processing*) and highlighted 30 key observations that one can make about lex-IP. Among them are the following examples: *Lex-IP takes place with isolated lexical items or sentence- and discourse-level input. Lex-IP and vocabulary learning occur in both intentional and incidental contexts. Word forms are processed and learned incrementally in segments. Word-initial and word-final segments are privileged over word-medial segments. Word-initial privileging is higher in shorter words; word-final in longer words*. The final three of these sample observations are supported, for example, by studies (Barcroft 2008; Barcroft and Rott 2010) in which both complete and partial productions of recently learned L2 words were analyzed.

Two of the 30 observations about lex-IP concern amount and type of exposure or repetition of lexical items in the input. The first is that *increased exposure to vocabulary increases lex-IP and vocabulary learning*, as is consistent with readily observable benefits of repetition in not only language learning but also human memory in general. The second is that *spaced (over*

massed) exposure to vocabulary increases lex-IP and vocabulary learning, as supported by research by Bahrick et al. (1993) and others.

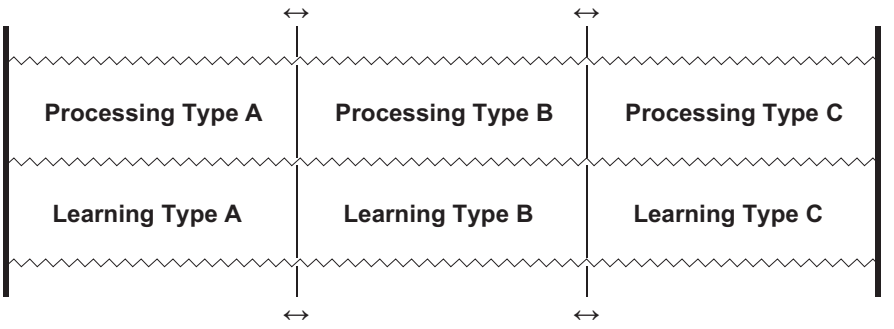
Another three key observations concern what one can expect from two different types of output: (1) output *with access* to meaning, which involves activating semantic space and partial or full retrieval of a target word, and (2) output *without* access to meaning, which does not. The three observations are as follows: *Output with and without access to meaning affect lex-IP differently. Output without access to meaning can detract from lex-IP and vocabulary learning. Output with access to meaning (retrieval) increases vocabulary learning*. Whereas studies revealing negative effects for word copying (Barcroft 2006, 2007a) and null effects of choral repetition (Wong and Barcroft 2020) point to the lack of benefit and potential role of detraction that output without access can play, other studies have demonstrated benefits of providing learners with opportunities to retrieve words (output with access to meaning) (Barcroft 2007b; McNamara and Healy 1995; Royer 1973). The combined findings of both lines of research speak to how each of these two distinct types of output affect lex-IP and amount of vocabulary learning completely differently, a point that L2 instructors can make use of when working to provide effective L2 instruction.

Processing specificity and vocabulary learning

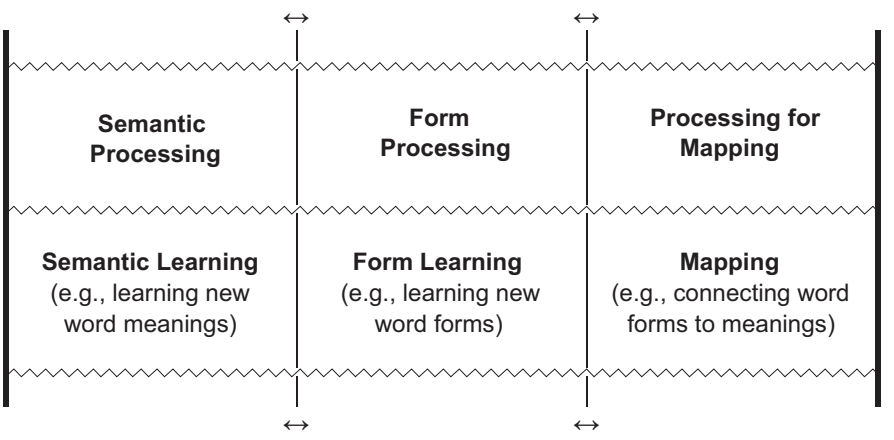
Another area of lex-IP research concerns how lex-IP and vocabulary learning are affected in different ways when learners engage in different types of processing – such as semantically oriented, structurally oriented, or mapping-oriented processing – when they are exposed to novel lexical items in the input. Three pertinent observations about lex-IP on this front are the following: *Semantic and structural processing are (at least largely) dissociable. Semantic and mapping-oriented processing are (at least largely) dissociable. Structural and mapping-oriented processing are (at least largely) dissociable*. In this regard, the type of processing – resource allocation (TOPRA) model (Barcroft 2002) (Figure 16.1) depicts how increases in any one type of processing can increase learning of that same type (when there is something to be learned) but also decrease processing and learning counterparts for other types. The bolded outer bars in the model reflect overall limits on one's available processing resources whereas the inner bars move left or right, depending upon the type of processing invoked when a learner engages in different types of processing during lex-IP and vocabulary learning in general.

A substantial number of studies have tested and confirmed predictions of the TOPRA model. Barcroft (2002), for example, tested the predictions of the TOPRA model by assessing the effects of writing target L2 words in sentences as a task that would increase semantically oriented processing. They found that sentence writing resulted in markedly lower intentional vocabulary learning when compared to a no-task condition and that the negative effect of sentence writing was more pronounced when the L2 in question was less formally similar to the L1 of the participants in the study. In another study, Barcroft (2002) found that engaging learners in increased semantic processing by means of a pleasantness ratings task during intentional L2 vocabulary learning resulted in higher subsequent free recall of the same words in L1 but lower free recall of the same words in L2 when compared to a structurally oriented letter-counter task. The negative effects of semantic elaboration in both these studies and the double dissociation observed in the second are predicted by the TOPRA model. Finally, Kida and Barcroft tested the TOPRA model from a different angle by assessing whether increases in either semantic processing or structural processing would decrease the mapping component of L2 vocabulary by having L2 learners attempt to learn previously unlearned meanings of homographs. Their results indicated that increased semantic processing and increased structural processing each, in turn, decreased homograph learning, as is consistent with TOPRA predictions.

A. General Version: Types of Processing and Learning



B. Components of Vocabulary Learning: Semantic, Formal, and Mapping



C. Semantic and Formal Components of Vocabulary Learning

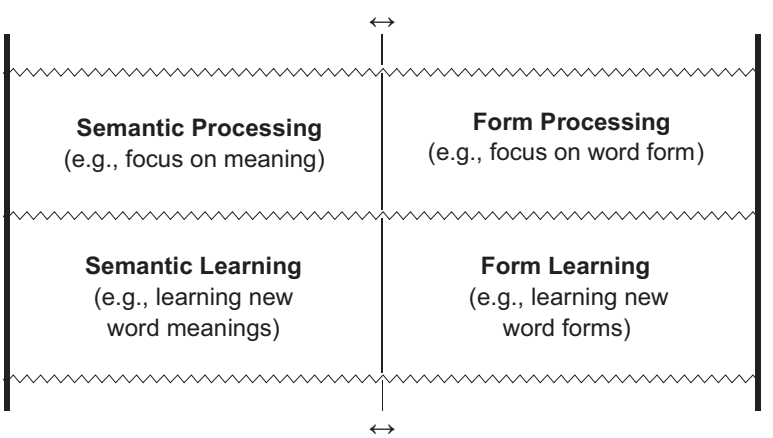


Figure 16.1 Type of processing – resource allocation (TOPRA) model (Barcroft 2002)

Can predictions of the TOPRA model bear out in contexts of incidental L2 vocabulary learning as well? The findings of studies by Barcroft (2009) and Kida (2020), for example, suggest that they can (see also Barcroft and 2015, for discussion of the TOPRA model in light the *involvement load* hypothesis [Laufer and Hulstijn 2001] and incidental vocabulary learning). In the first of these two studies, Spanish-speaking learners of L2 English read a passage (1) with or without instructions to attempt to learn translated words in the text (intentional or incidental) and (2) with or without performing a semantically elaborative task, which was to generate Spanish synonyms for the translated English words (increased semantic processing or no increased semantic processing). Vocabulary learning scores were lower when learners performed the semantically elaborative task in the intentional learning condition, and the same held for the incidental learning condition. The second study by Kida (2020) assessed the effects of a semantic task, a structural task, and a no-task control condition, as well as number of exposures (1 or 3) to novel words on incidental learning of L2 English words during reading. Results indicated lower vocabulary learning with the semantic task as compared to the structural task and control and, potentially due to the nature of the structural task (rewriting English words in a Japanese script), higher vocabulary learning for the structural task as compared to the control condition. Barcroft (2015) refers to findings such as these as evidence of the *resource-depletion potential* of increased semantic processing given the circumstances of these studies without negating how the *attention-drawing potential* of semantic processing might lead to increased vocabulary learning in other circumstances.

The developing bilingual mental lexicon

Scholars interested in vocabulary learning from a psycholinguistic perspective tend to ask slightly different questions when it comes to the lexicon like: How are words and concepts linked in the developing lexicon? How do increases in L2 proficiency affect lexical and conceptual development? And how does context of acquisition affect the learning process? To answer these questions, we turn to a well-known developmental model of the lexicon, the revised hierarchical model (RHM: Kroll and Stewart 1994) and describe some empirical research testing the model's predictions, beginning with a bit of historical context leading to the development of the RHM.

Early descriptions of the lexicon

Weinreich (1968) provided an early conceptualization of how the words and concepts were linked in the lexicon with his classification of compound, coordinate, and subordinate bilinguals. Weinreich described a *compound bilingual* as an individual with one conceptual representation for an object and two different labels (words) for that concept. He described a *coordinate bilingual* as an individual with two separate conceptual representations linked to two separate words. And finally, he described a *subordinate bilingual* as having one conceptual store but access to that conceptual store is through the L1 words. The L2 words are only linked to the L1 words.

Several years later, Potter et al. (1984) proposed and tested two models that parallel what Weinreich proposed regarding subordinate and compound bilinguals. The *word association* model, which is similar to Weinreich's description of the subordinate bilingual, assumes that words in the two languages are stored separately but that concepts for the two languages are shared. According to this model, only L1 words have direct access to the concepts; therefore, L2 must necessarily be translated to the L1 to access meaning. The *concept mediation* model, which is similar to Weinreich's compound bilingual, assumes that two languages are stored in separate lexicons with only one conceptual store, but both languages have access to the conceptual store. According to this model, no translation strategy is needed.

In order to test models of the lexicon, psycholinguists use performance speed and accuracy on language tasks as measures of processing. Potter et al. (1984) tested these two models by comparing the performance of highly proficient bilinguals on picture-naming and translation tasks. These two models make different predictions about performance speed on these two tasks. According to the word association model, translating should be faster than picture-naming; in order to translate a word, one needs to go from the L1 to the L2 at a lexical level, and therefore, the conceptual level can be bypassed. However, in order to name a picture, one necessarily needs to access the concept and then access the L1 word and translate it into L2. Picture-naming would therefore involve more steps and take longer than translating. In contrast, the concept mediation model predicts that both the translation task and the picture-naming task should take approximately the same amount of time since both languages have direct access to the conceptual store. Potter et al. found that both tasks took the same amount of time, concluding support for the concept mediation model over the word association model.

Subsequent studies (e.g. Chen and Leung 1989; Kroll and Curley 1988) challenged Potter et al.'s (1984) results and found that once the notion of proficiency was considered, the pattern was quite different. Less proficient bilinguals performed the translation task faster than the picture-naming task, supporting the word association model, and more proficient bilinguals performed the two tasks in the same amount of time, supporting the concept mediation model. Essentially, less proficient bilinguals were translating, and more proficient bilinguals were able to avoid translation and conceptually mediate. Thus, at early stages of acquisition, the lexical-level connections appear to be salient for the learners. With increased experience, however, the learner develops the ability to conceptually mediate the L2 directly and to avoid the translation strategy. Thus, the theoretical foundation for the revised hierarchical model (Kroll and Stewart 1994) emerged.

The revised hierarchical model

The RHM (Kroll and Stewart 1994), combining aspects of the word association model and the concept mediation model, captures how lexical and conceptual links change as a learner becomes more proficient in the L2 (see Figure 16.2). First, the model contains two separate lexicons for L1 and L2 words and one common conceptual store.

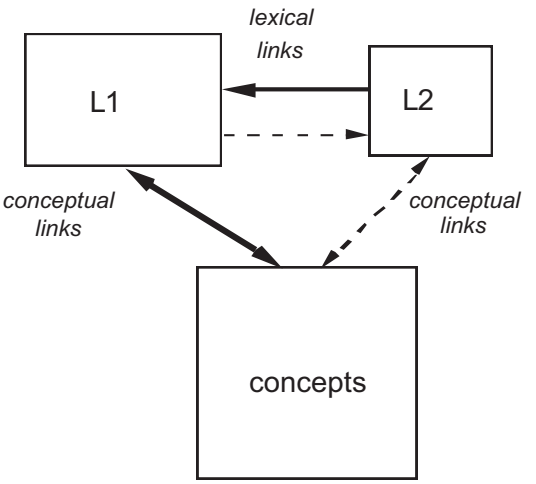


Figure 16.2 Revised hierarchical model (adapted from Kroll and Stewart 1994)

The L1 lexicon is represented as larger and containing more words than the L2 lexicon. Second, the arrows in the model represent the lexical and conceptual links assumed to be active in bilingual memory. There are both lexical word-to-word links and conceptual word-to-concept links in this model. Third, the relative strength of these links, as represented by the thickness of the arrows, is assumed to be a function of language dominance. For a beginning learner, the associations between L1 words and concepts will be very strong whereas the associations between L2 words and concepts will be weaker. Similarly, the model suggests that lexical associations from L2 to L1 will be strong whereas the L1 to L2 lexical links will be weaker. Last, what is striking about this model is that it captures the asymmetry in the interlanguage connections between the lexical representation and the conceptual information in the developing lexicon. As proficiency in the L2 increases, the interlanguage connections change and shift from lexical processing to conceptual processing. In other words, L2 learners move away from the L1 translation strategy. Whether and how learners move away from reliance on a translation strategy during vocabulary acquisition and toward conceptual mediation remains an important question in the field.

Proficiency and the L2 lexicon

One of the first and most often-cited studies that directly examined the role of proficiency in the L2 lexicon is Talamas et al. (1999). In their study, Talamas et al. described evidence from the classroom setting in which learners in a basic level language class made errors based on lexical form relations. For example, beginning learners would confuse words like *mujer* (meaning 'woman') for *mejor* (meaning 'best') or *cuida* (meaning 'to take care of') with *ciudad* (meaning 'city'). Learners, in what they describe as a more enriched or advanced classroom setting, did not seem to make those types of errors, and instead made more semantic-based errors. Using this idea that less proficient learners were more tricked by form related similarities, Talamas et al. created experimental stimuli that would reflect the nature of L2 vocabulary errors to test this developmental prediction of the RHM.

Talamas et al. (1999) compared the performance of more and less proficient bilinguals on a translation recognition task (De Groot 1992a). In a translation recognition task, a word is presented briefly on a computer screen in one of the participant's two languages and is then followed by a word in the other language. The task was to decide as quickly and as accurately as possible whether the second word was the correct translation of the first. In the Talamas et al. study, the critical focus concerned those trials in which the two words were not translation equivalents (i.e. the *no* trials). On half of the *no* trials, the two words were related by virtue of word form similarity (e.g. man – *hambre*, where *hambre* means 'hunger' and looks like the correct translation *hombre*) or meaning (e.g. man – *mujer*, where *mujer* means 'woman'). Thus, the experimental stimuli reflected the types of errors that were occurring in the classroom. The logic of the task was that if a learner had a difficult time (i.e. took longer in terms of reaction time in milliseconds or was more inaccurate) rejecting these tricky 'no' pairs compared to unrelated 'no' pairs, then the type of relationship (either form or meaning) was to blame.

Talamas et al. tested English-dominant individuals who differed in their level of proficiency in Spanish. They found that the two types of related trials produced different results for the more and less proficient bilinguals. For less proficient bilinguals, there was significant interference for form-related pairs (man – *hambre*), but little effect for semantically related pairs (man – *mujer*). For more proficient bilinguals, the pattern was reversed; form-related pairs produced inconsistent effects in performance, but semantically related pairs produced significant interference. The overall pattern of results mirrors the anecdotal classroom evidence and provides support for the hypothesis that in the early stages of L2 learning, lexical form

relations between L2 and L1 provide the basis of interlanguage connection, but with increasing proficiency, learners are able to directly access conceptual representation and move away from a translation strategy.

Context of acquisition and the L2 lexicon

While the Talamas et al. (1999) study perfectly aligned with the predictions of the RHM, subsequent research began to find that learners, in some contexts and under some conditions, could access concepts early in development without mediation of the L1 word (e.g. Altarriba and Mathis 1997; Poarch et al. 2015; Sunderman and Kroll 2006). For example, Poarch et al. (2015) found early conceptual mediation with Dutch children at beginning stages of learning English. The authors argue that both the L2 learning method used in Dutch primary schools and the bilingual environment of the Netherlands may explain this early conceptual mediation. The children in the study were taught using the *Real English* teaching method (Van der Voort and Mol 1998) that encourages L2 word-to-concept mappings by listening to and repeating spoken English. In this method, translation and pair-associate learning are minimized. In terms of the environment, the children lived in an area where English permeates daily life, particularly in television and movies being aired in English with Dutch subtitles. Thus, methods of vocabulary learning and context of acquisition are critical factors to continue to explore.

As scholars continue to research vocabulary learning, we will continue to use models such as TOPRA (Barcroft 2002) and the RHM (Kroll and Stewart) to guide our thinking. Models are valuable tools for those interested in research on how words and concepts are linked during L2 vocabulary learning. Of course, no model is perfect. For example, scholars over the years have challenged aspects of the architecture and the various claims of the RHM (e.g. Brysbaert and Duyck 2010). Rice and Tokowicz (2020) recently presented a modified version of the RHM incorporating components of repetition, elaboration, and retrieval (each being critical in lex-IP, as discussed). In the end, as the field moves forward, more theory building on L2 lexical acquisition will be needed. New research on one promising model, the declarative/procedural model (see e.g. Ullman 2020), may provide insights into how particular vocabulary interventions lead to better learning and retention in declarative memory, which ultimately is the crux of L2 lexical development.

Summary

This chapter highlighted key points in the history of linguistic research on lexis and clarified key concepts related to what words are, including the various formal and semantic properties of words and the lexical characteristics of words, such as word frequency and orthographic neighbourhoods. The chapter also emphasized and exemplified the important role of formulaic language in language learning and language use and the abundant amount of regional variation that exists in language at the lexical level, including examples for individual words and multi-word phrases. In light of the large number of research areas related to lexis, we selected two areas of research, L2 vocabulary learning and the bilingual mental lexicon, as our foci for the final two sections of the chapter. Among the issues discussed in these sections were the incidental-intentional distinction in L2 vocabulary learning and how proficiency and context of learning affect the developing bilingual mental lexicon.

Related topics

corpus linguistics; generative grammar; cognitive linguistics

Note

1 We are thankful to our colleague Norbert Schmitt for his contribution to the previous edition of this chapter, which still appears in the current edition.

Further reading

Barcroft, J. (2015) *Lexical Input Processing and Vocabulary Learning*, Amsterdam and Philadelphia: John Benjamins. (A book on theory and research on lexical input processing [lex-IP], including 30 key observations about lex-IP and vocabulary learning)

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Nation, I. S. P. (2013) *Learning Vocabulary in Another Language*, Cambridge: Cambridge Applied Linguistics. (The second edition of a book covering a wide range of topics related to second language vocabulary learning and instruction)

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17

Applied phonetics and phonology

Helen Fraser

Introduction

Phonetics and phonology are the academic disciplines that generate knowledge about the sound of spoken language: what it is like (acoustic phonetics); how it is produced (articulatory phonetics) and perceived (perceptual phonetics); and how it can be divided into units and formed into patterns that enable speakers to communicate linguistic meaning (phonology). Together, and with input from a range of related disciplines, these form the broad field of phonetic science.

The word 'applied' in applied phonetics and phonology (APP) originally referred to teaching pronunciation to learners of English as a foreign language, which was seen at that time merely as *applying* existing knowledge about the English sound system (cf. Davies 2007). Now, however, APP is a discipline in its own right, covering any practical endeavour in which knowledge of phonetic science is relevant. While this still includes second-language pronunciation (now broadened to cover a wide range of languages and learning situations), it also covers speech pathology, literacy education, accents for actors, forensic phonetics, and computer applications, such as speech synthesis and recognition, among other branches. Importantly, APP now generates knowledge and theory of its own and has developed a range of valuable resources, including textbooks (Munro 2020; Yavas 2020), an extended section of the *Wiley Encyclopedia of Applied Linguistics* (Chapelle 2019), an *International Symposium on Applied Phonetics*, and multiple journals and conferences covering specific branches of APP.

Since phonetics and phonology have a well-deserved reputation as highly technical or theoretical subjects, most introductions to APP provide a simplified account of basic theory, then move on to more practical topics. That is a useful approach, but the present chapter makes a different choice. Rather than attempt to replicate the kind of introduction already well covered in references such as those just mentioned, it offers a conceptual understanding of some more advanced findings of phonetics and phonology that are relevant to APP. It starts with an account of some observations of forensic phonetics that challenge conventional ideas about what speech is like. Then it presents some well-established research findings about the nature of speech and how it is perceived that account for these observations. Finally it shows how these findings can be relevant in other branches of APP, including pronunciation teaching.

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While this is done in a non-technical way, the chapter may be more suitable for readers with some background in applied linguistics. Absolute beginners can be recommended Munro (2020), which provides authoritative yet very accessible coverage of multiple branches of APP. Those who do have background in applied linguistics, however, may be interested to note that the conceptual understanding developed here makes direct links to branches of applied linguistics that use sociocognitive or sociocultural theories. In particular, it emphasizes that phonological metalanguage is simply language, that can and should be used with intercultural sensitivity for inclusive communication.

Forensic transcription – surprising and concerning

Transcription is the process of representing spoken language with written symbols. This can be done in many different ways. Orthographic transcripts (in ordinary spelling) are used to provide 'verbatim' (word by word) records of official events, such as legal or government proceedings. Scientific transcripts are used in various branches of linguistics to give detailed representations using technical symbols such as those of the International Phonetic Alphabet (IPA).

Forensic transcription represents spoken language captured in a recording and used as evidence in a criminal trial (see Grant and Tayebi, Volume 2). It is different from other kinds of transcription in several ways. First, forensic recordings are often indistinct. An example is discussed shortly: before reading on, readers might like to experience it for themselves, via the 90-second video on the front page of forensictranscription.net.au. A more important difference is that the content of the recording is unknown or disputed. So forensic transcripts are used, not as a written record of known content but as assistance to the court in understanding what is said.

For justice to be done, it is essential for forensic transcription to be reliable, and the law has a number of safeguards to ensure this. Unfortunately, these safeguards rely on lawyers, judges, and juries checking the transcript against the audio. This is not effective, as has been demonstrated by a number of experiments (Fraser 2020). Two of these use the audio from an emergency call in which a young man reports a murder (part of the call is heard in the 90-second video mentioned earlier). In preparing the audio for court, a police officer transcribed the young man saying, 'I shot the prick.' This was taken to be a confession, supporting the prosecution case that the caller himself was the murderer. However, experts on both sides agreed that the transcript was not accurate. After much legal argument (Innes 2011), it was not used – and the jury eventually handed down a verdict of not guilty.

When the trial was fully concluded, the audio was released into the public domain. This enabled researchers to run an experiment exploring what might have happened if the transcript had been given to the jury (Fraser et al. 2011). Participants from all walks of life (as in a jury) listened to the audio repeatedly as evidence about the murder was gradually revealed to them (as in a trial). At first no one heard 'I shot the prick.' However as soon as it was suggested, around 30% heard this incriminating phrase. Importantly, half of these continued to hear it even after being told that experts on both sides agreed that it was inaccurate. Further, there was a significant correlation between participants hearing the phrase and considering the speaker guilty. These results confirmed that a transcript can influence or 'prime' listeners to hear words it suggests, even if they are inaccurate.

Experiment 2 (Fraser and Kinoshita 2021) used the short section of the emergency call heard in the 90-second video, and had three steps (as in the video). Participants were mostly linguistics students and were given no information about the murder. First, they simply listened to the audio. As in Experiment 1, most heard no words at all, and around a third heard 'I can't breathe.' None heard 'I shot the prick.' Participants were then divided into two groups. Each

group was offered, sequentially, two transcripts to evaluate (as in the 90-second video). Group A were first offered 'I shot the prick' and then 'I can't breathe.' Group B were offered the same transcripts in the opposite order. In each group, around half accepted the inaccurate transcript 'I shot the prick' when it was suggested. Most remarkable was Group B. When 'I can't breathe' was suggested, 84% accepted it. However, more than half changed their minds, with a total of 56% accepting the inaccurate 'I shot the prick' when that was suggested.

These results are often found surprising. However, it is well known in perceptual phonetics that an inaccurate transcript can be powerfully persuasive – even to careful, unbiased listeners with a more plausible alternative to consider. The problem is, while this is well known in perceptual phonetics, it was not known to those who designed the law regarding forensic transcripts. They simply assumed that responsible listeners like lawyers and judges could be trusted to detect errors in transcripts. Unfortunately, this assumption is wrong – and there are multiple known cases of misleading transcripts passing the scrutiny of lawyers and being admitted to 'assist' the jury (Fraser 2020).

There's more to what you hear than meets the ear

What makes these experiments surprising is their demonstration that hearing words involves a process of interpretation. Everyone knows that understanding the meaning of spoken words requires interpretation. However, most people assume that hearing the words themselves is straightforward: listeners simply recognize 'sounds' (phonemes) in the flow of speech and put them together to form words. So recognizing /k/ + /æ/ + /t/ enables listeners to hear the word 'cat', which can then be combined with other words to create sentences, such as 'The cat sat on the mat.'

Forensic transcription offers a massive challenge to this apparently obvious idea – by showing that a single stretch of speech can be interpreted as completely different sequences of words, composed of completely different phonemes. This challenge is somewhat familiar from humorous experiences such as mishearing song lyrics. English comedian Peter Kay, for example, hilariously manipulates audiences into hearing Michael Jackson sing 'your burgers are the best' instead of 'your burdens I will bear'. However, few people follow the implications of the humour. To do so, consider what it is that makes Peter Kay's examples funny.

The answer is that the humour arises from our experience of hearing the absurd words he suggests *even though we are sure they cannot possibly be right*. How can we be so sure? Because we have relevant reliable information to refute the content and/or context. Perhaps we know the real lyrics – or, if we do not, we have contextual knowledge that a romantic pop song is unlikely to contain a line like the one he suggests. Contrast that with forensic transcription, where no one knows for sure what words were really spoken, and contextual knowledge is often unavailable or disputed. With no reason for listeners to doubt what their ears seem to hear, the transcript is experienced only as assisting, not as misleading. That is why it is so hard for lawyers and juries to detect errors in an unreliable transcript.

So how can we ensure that only reliable transcripts are provided in court? It might seem that skill in scientific transcription would be key. Indeed, Experiment 1 has been used by teachers of APP to encourage students who find phonetic transcription challenging, by showing them its practical relevance. Experiment 2, however, suggests that ability in phonetic transcription does not guarantee ability in forensic transcription: they are different skills. One key difference is that forensic transcription is concerned primarily with discovering what words were spoken, whereas, in phonetic transcription, the issue is not what words were spoken, but how to represent them. To see this, consider what Experiment 2 participants might have written if they had been asked to transcribe their responses, not in ordinary spelling, but in IPA

phoneme symbols. As Australian English speakers, they might have written something like /aɪ ‘ʃɒt ðə prɪk/ and /aɪ kaːnt ‘briːð/. You might transcribe the words differently, but the point is that the two transcripts will contain quite different symbols depending on which phrase is accepted. This observation has some counter-intuitive implications. The one that is relevant to this chapter is that, to know what the phonemes are, you first need to know what the words are – which is the opposite of what most people expect (for further discussion, see Fraser and Loakes 2020; Fraser 2022).

This is where we leave our consideration of forensic transcription. While it is interesting in itself, its main purpose here has been to raise issues that are relevant across multiple branches of APP. The next sections delve into those issues in a more general way.

The nature of speech – it is not like we think it is

Phonemic versus phonetic transcription

The first kind of transcription learned by most students of APP involves using one IPA symbol for each phoneme. It seems this ‘phonemic transcription’ (often loosely called phonetic transcription) should be easier that spelling, with its many inconsistencies. However, phonemic transcription can be surprisingly hard – partly because, unlike spelling, it cannot be standardized (see the section ‘Where do sublexical units come from?’).

True phonetic transcription is very different from phonemic transcription, and far harder. It aims not just to label phonemes with unique symbols but to represent their physical characteristics. Close observation shows that many phonemes vary in their physical characteristics depending on what context they occur in. For a simple example, the /s/ in /suː/ (‘sue’), which precedes a lip-rounded vowel, sounds somewhat different from the /s/ in /siː/ (‘see’), which precedes an unrounded vowel. This example is one of the easiest to observe. Many phonemes have variants which need considerable training to discern. Recognition of these variant pronunciations of a single phoneme (called allophones) is the beginning of understanding the crucial but complex theoretical distinction between phonetics and phonology, developed through the early to mid-20th century (Anderson 1985).

Obscure as they can be, however, the allophones observable via auditory analysis are the tip of a huge iceberg. Advances in acoustic phonetics, from the 1940s, made it possible for speech to be analyzed into its component frequencies. The understanding this gave enabled researchers to synthesize speech-like sounds by combining soundwaves of appropriate frequencies. This seemed to open the door to exciting new applications. The first one researchers were keen to develop was a reading machine for the blind (Shankweiler and Fowler 2015). Of course, they understood that such a machine would not be able to read ordinary text, due to the inconsistencies of English spelling. However, it was confidently expected that, if a text could be represented in phonetic symbols, synthesizing the relevant allophones would produce intelligible words and sentences. Sadly, however, the result did not sound much like speech at all. (You can get an impression of the problem by recording /k/, /æ/, and /t/ in a sound editor, then joining them up by deleting the spaces: it probably will not sound like /kæt/.) After various unsuccessful attempts to smooth out the transitions from one allophone to the next, the quest for a reading machine was put aside. However, the findings spurred enormous research into the nature of speech.

Decades of research summarized in one word

The results of this research can be summarized with one word: *variability* (Perkell and Klatt 1986). It turned out that every unit of speech has variant pronunciations influenced by a wide

range of factors. Indeed, it has been said that the same word is never pronounced in exactly the same way twice (Ladefoged and Disner 2012) – and that is without even considering the variability between different social situations (Foulkes and Docherty 2005) or different speakers (Foulkes and Hughes in press).

The effect of this variation is that speech that seems quite clear at the sentence level is typically indistinct at the level of individual words and phonemes (Stilp 2020). To get a flavour of this, bring a recorded conversation into a sound editor. Play some words, in isolation, to friends who do not know the context. Can they identify the words? Often, words heard without contextual information are unintelligible – even though they seem perfectly clear in context (Fraser 2022).

All this variability makes phonetic transcription using the segmental (letter-like) symbols of the IPA highly problematic (Heselwood 2013), especially for informal conversation (the kind called 'jungle speech' by Cauldwell 2013). Some argue that the phonetic detail of speech is better represented by plotting acoustic 'cues' in non-linear patterns or by reference to 'suprasegmental' features of syllables and intonation phrases (see Clark et al. 2007). Others suggest representing not acoustics but articulation (see Laver 1994). While it is certainly beneficial to learn such representations, too much focus on technicalities risks missing the key insight: though speech appears to listeners as a sequence of discrete units (phonemes, syllables, words), it is actually a continuous stream of sound. Any representation, even the most detailed, is an abstraction that inevitably loses some of the stream's rich complexity (Port 2007a).

A useful (though limited) analogy is that even the clearest of speech is like extremely messy cursive writing, with no gaps between the words, let alone between the individual letters (see Fraser and Loakes 2020). This seems so different from our everyday observation of speech that it may be hard to believe. However, for some branches of APP, it is really important to grasp that it is nevertheless true. Reflecting on the experience of listening to a language you do not understand may help. Typically, an unknown language sounds continuous, while a known language sounds like a sequence of words and phonemes. Of course, the difference lies in our understanding, not in the languages. All spoken languages are continuous, with highly variable phonemes, yet all listeners hear their own language(s) as a sequence of discrete, invariant units.

Continuous and variable versus discrete and invariant

The discovery that speech is a continuous stream of sound was surprising to phonetic science (Shankweiler and Fowler 2015). However, it masks an even more surprising observation that gets far less attention. That is the fact that listeners are completely unaware of the real nature of speech. Even when we know, in principle, that speech is continuous and highly variable, we still hear it as a sequence of discrete invariant units.

It is important to appreciate just how weird this is. It is as if we were looking at a page of extremely messy cursive writing with no gaps – yet confidently seeing it as a page of neatly typed letters grouped into separate words. This would be impossible in the visual domain. However, with speech, somehow our minds achieve it – so efficiently and completely that it is nearly impossible to fully recognize the true, continuous, nature of speech. To be clear, there is no suggestion here that we *ought* to focus on the continuous nature of speech (see the section 'Where do sublexical units come from?'). For language to work, our attention must be on the discrete units. However, for some branches of APP, it is very helpful to understand, in general terms, that the units are actually abstractions, derived from the continuous stream.

How do we hear words in the continuous stream of speech?

The everyday idea that we hear words by first recognizing phonemes seems unquestionable. Yet it must be wrong. As discussed, phonetic science has shown that, despite our strong intuitions, even the clearest speech contains no phonemes, nor any other discrete invariant units, for us to recognize. This means that word recognition cannot be a bottom-up process (achieved purely on the basis of information in the signal). So how do we recognize words? The answer is that our minds provide additional information, derived from the context, that enables us to predict what words we might hear next (e.g. after 'Save your money in the . . .', the word 'bank' is highly predictable). Indeed, it was ability to build such predictions into computer systems that finally enabled practical computer speech recognition systems (Pieraccini 2012).

Listeners are not aware of making predictions, but experiments like those discussed earlier show how easy it is to alter what people hear simply by changing their expectations – with no need to alter the audio itself. Importantly, while these effects are more noticeable with indistinct audio, they occur even with clear speech (Stilp 2020). As expectations shift, the words shift – and the phonemes shift to fit the new words. This indicates that words, not phonemes, are primary in listeners' experience – similar to the 'word superiority' effect in reading, whereby fluent readers recognize printed words even if the letters are obscured or disordered (Warren 2012). However, one major difference between print and speech is that speech has no features that always and only identify each particular phoneme – as, for example, a vertical stroke with a circle at top right uniquely identifies the letter 'p'. This is why, contrary to popular belief, experts can rarely determine words from acoustic data alone, without knowledge of the content or context (see Fraser 2022).

As for exactly how predictions are used in speech perception – there are many theories (Magnuson et al. 2013). This is not the place to get into detail. However, it may be useful to distinguish two broad classes of theories. One class retains the view that word recognition requires prior recognition of sublexical units (any units smaller than a word, including phonemes and syllables) which enable meanings to be 'looked up' in a mental dictionary. These theories can be called 'computational' since they understand the human mind to operate like a computer. Of course, computational theories do not suggest that sublexical units are simply picked up from the speech signal (which is impossible, as discussed earlier). Rather they see them as being constructed via 'top-down' processes operating below listeners' conscious awareness, as a step towards word recognition.

Computational theories have many uses, but not all branches of APP are well served by conceptualizing the mind as a computer (cf. Murphy Paul 2021). Another kind of theory, which can be called sociocognitive phonetics (Fraser 2013), sees the processes involved in recognizing the sound of words as being similar to the interpretive processes involved in understanding their meaning – an essentially non-computational process (Chandler 1994). For sociocognitive phonetics, learning and using speech involve, not unconscious computational processes, but conscious social and cognitive understanding (cf. Bandura 2002; Vygotsky 2012) – similar to that appealed to in other branches of applied linguistics (see Larsen-Freeman, this volume). One controversial aspect of sociocognitive theories is that they consider recognition of phonemes to depend upon prior recognition of words. At first glance, this may seem an extraordinary idea. However, it fits well with evidence from acoustic and perceptual phonetics discussed earlier – as well as from language and literacy acquisition, discussed next.

Where do sublexical units come from?

A common misunderstanding is that taking seriously the observation that sublexical units do not exist independently in the continuous stream of speech means we have to abandon talk of

phonemes. This is not correct. The ability to recognize, name, and manipulate phonemes (and other sublexical units) is essential for competent language use. The fact that these units cannot be identified bottom up does not at all negate their importance. It simply suggests that, in researching certain branches of APP, we should take account of where they come from. This means reviewing some well-known facts about children's language acquisition (e.g. Berko-Gleason and Ratner 2016), focusing to start with on the monolingual situation.

Babies begin their language-learning journey by babbling (producing long 'utterances' that mimic the rhythm and intonation of adult language but without recognizable words – presumably how adult speech sounds to them). The child's first word is a major milestone, following which many words are acquired rapidly. Gradually children learn to combine words into multi-word sequences with more complex meanings and ultimately into adult-like sentences. Learning the meanings of words may seem like simply attaching labels to 'things' – but it is actually far more complex (Brown 1958). Even a simple noun like 'dog' refers not to one 'thing' but to a wide range of physically different creatures. Discovering which should be conceptualized as 'the same' (poodles, dalmatians, stuffed toys) and which as 'different' (cats, cows, other stuffed toys) takes explicit guidance over an extended time, with children making many cute mistakes along the way.

A similar process is needed to learn the sound of each word (Vihman 2008). Children need guidance to learn that a lot of different-sounding words are 'the same' (consider 'dog' produced by men, women, and children, with different accents, emotions, styles, etc). On the other hand, some similar-sounding words are 'different' (e.g. 'dog', 'dock', 'dug'). Learning this requires developing sophisticated phonological knowledge. However, the knowledge is implicit. Children get far along the path of language acquisition without explicit awareness of sounds or even of words. For example, a child who can easily count dogs, and say 'two dogs', may look blank when asked to count the words they use in doing so. Even when they do learn to count words, children typically lack the ability to refer to parts of words (Byrne 1998). Doing that requires phonological metalanguage (language used to refer to words and their parts), which takes further guided instruction and much practice (Gillon 2007).

Implicit metalinguistic concepts suffice for spoken language, but literacy demands more. Learning to read and write in an alphabetic system, like English, requires explicit 'phonemic awareness' – the ability to recognize 'dog' as having three distinct 'sounds' and to label each with a word ('dee', 'oh', 'gee'). Importantly, it requires recognizing words like 'sue' and 'see' as starting with 'the same sound' – quite a feat since, as we saw earlier, these 'same sounds' are actually physically different. Similar, more difficult, feats must be performed for many other phonemes (Byrne 1998). Finally, and perhaps most confusingly, children must 'unlearn' the phonemic principle, that each letter represents a sound, in order to master the standard spelling of English, which defies this principle in numerous ways.

One interesting observation is that, though developing phonological metalanguage clearly takes great effort over several years, once the learning is finally achieved, the newly literate forget the hard work. They come to believe that literacy is 'as easy as ABC': phonemes seem like basic, objective units of speech, simply 'there', to be recognized, represented with letters, and put together to form words (albeit sometimes in inconsistent ways). These ideas become thoroughly entrenched during school and post-school education, accepted as simple facts of 'common knowledge'. However, as discussed in earlier sections, these apparent facts have been shown by phonetic science to have very limited truth.

An even more interesting observation is that these limitations are evident even without the findings of phonetic science. Many apparent facts of common knowledge are contradicted by familiar personal experiences – Port (2007b) gives some arresting examples from everyday

life. Others are called into question by well-known observations of applied linguistics. For example, if phonemes are the basic units of speech, why is phonemic awareness so hard for those acquiring literacy? Why, indeed, is phonemic transcription so difficult for many literate adults? Why are those who find phonemic transcription difficult more likely to consider themselves 'hopeless at phonetics' than to see their difficulty as evidence revealing the limited truth of the apparent fact that phonemes are basic, observable units of speech? The next section offers some answers.

Phonological metalanguage is just language

All the phonological learning described in the section 'Where do sublexical units come from?' depends heavily on the particular language and writing system that the child is being socialized into. While children from different language and literacy backgrounds go through similar stages, the details of the phonological metalanguage they ultimately learn vary dramatically (Frost and Katz 1992; Treiman and Kessler 2005).

This is similar to the situation with word meanings (semantics). For a simple example, consider the colour spectrum, which shades continuously from red to green to blue. Different languages divide this continuum up differently. Learning the particular way their own language conceptualizes colours is a significant challenge for children. For example, English-speaking children need guidance to understand that a range of physically different colours are all given the same word, 'blue', while another, physically similar, colour is given a different word, 'green' (Dye 2011).

Yet once this learning is achieved, colour terms seem to refer to objectively different colours: all the blues share a similar 'blue-ness', while the greens have a distinct 'green-ness'. So English speakers are typically surprised to discover, for example, that other languages refer to 'dark blue' and 'light blue' with separate words, or coalesce 'green' and 'blue' under one colour term. This kind of everyday essentialism (belief that words refer to things with fixed, objective features rather than to language-specific abstractions) affects many aspects of language (Deutscher 2011 provides more detail on colour terms, along with many other fascinating examples). Breaking through this everyday essentialism to discover the 'linguistic relativity' behind it can be hard – which is part of what makes intercultural communication challenging (Hua 2019).

The effect of learning the spelling-based phonological metalanguage of English (or any other specific language) creates a similar essentialism – but one that is even harder to break through. As we have seen, attaining literacy entrenches a particular way of thinking about the sound of speech. Belief that the sublexical units of one's own language are objectively observable entities makes it hard to understand that speakers of other languages might conceptualize sounds very differently. And yet they do. As is well explained by Bohn (2000), the situation is exactly like the well-known linguistic relativity of semantics – but with even less recognition.

For a famous example, speakers of Japanese typically find it difficult to distinguish English /r/ and /l/. It is often assumed that their difficulty is in producing the sounds – but really it is in noticing and controlling the difference. This seems extraordinary to English speakers – how could anyone not notice the difference between such totally different sounds? The reason of course is that in Japanese, [r] and [l] are not separate phonemes but allophones of a single phoneme, similar in status to the allophones of /s/ in English 'sue' and 'see' – and speakers of any language typically notice differences only between its phonemes, not its allophones.

All this makes metalinguistic communication (communication about sublexical units) extremely challenging for those from different language and literacy backgrounds – such as adult learners of a second language and their teachers. English speakers are fortunate in the

availability of structured programs to assist them in learning a wide range of new languages. These programs, designed by experts with detailed knowledge of both languages, use metalanguage that helps learners compare and contrast words in the new language – providing an adult version of the process by which children gradually learn the sublexical units of their first language.

Occasionally, however, English speakers have the experience of being taught a new language by a teacher who knows no English and no APP. Hyde (2000) offers an instructive reflection on what this is like. Especially interesting are her observations of how unhelpful she found it when the well-meaning monolingual teacher described sounds using the metalanguage of the language Hyde was trying to learn. The experience can be likened to being taught the colour system of a new language by a teacher who speaks only the target language and recognizes only the colours named in that language, with no awareness of their variants and no inkling that the learner's language might identify colours in very different ways. No matter how conscientiously such a teacher tries to help, they will inevitably be constrained by the unrecognized cultural assumption that their own way is the only way – and the same is true in teaching pronunciation.

Teaching English pronunciation

The 20th century saw enormous demand for English language tuition for learners from very different language and literacy backgrounds. Much of this demand was met by monolingual English teachers with minimal understanding of second language learning (Ellis 2016). This had a particularly bad effect in pronunciation (Pennington and Rogerson-Revell 2019). First the behaviourist era was dominated by ineffective methods focused on training the articulation of phonemes in decontextualized minimal pairs. Then generative linguistics brought the belief that second language pronunciation could not be learned beyond a 'critical age' and so was not worth teaching at all – leaving a vacuum readily filled by teachers with insufficient understanding of APP (Thomson 2012).

Fortunately, the 1990s saw development of more pedagogically informed teaching methods (Murphy and Baker 2015). Since then, there has been a large increase in research on second language pronunciation, showcased in a new journal (Levis 2017) and explored in multiple international conferences (e.g. Henderson 2011). This has resulted in curricula, for both teachers and learners, based on evidence about what really helps learners speak in a way that makes them intelligible to listeners (Derwing and Munro 2015). Pedagogical practices include concern not just for correcting errors but also for providing feedback that learners can genuinely learn from (e.g. Lyster et al. 2012). Despite these improvements, however, many learners struggle with pronunciation. Clearly this has multiple causes (Fraser 2011), but one factor may relate to the fact that many teachers still struggle, even after tuition in APP, to fully understand the reasons behind learners' difficulties and thus how to help them effectively (Burri et al. 2017).

Can insights from advanced phonetic science help?

Many APP courses for English language teachers focus on providing technical information about the sound system of English – including phonemes, syllables, and suprasegmental features, such as stress and intonation patterns. This information can be useful. However, without appropriate contextualization, the technicalities can serve to increase teachers' false belief that sublexical units are objectively observable units of sound, and that learning to produce words and phrases requires prior learning of how to produce and perceive sublexical units.

The true situation, counterintuitive as it may seem, is the other way round: learning sublexical units requires prior learning of words, as discussed earlier. Thus, teaching second language pronunciation requires helping learners traverse the steps of first language phonological acquisition described in the section 'Where do sublexical units come from?' – though of course adult learners can take advantage of cognitive skills not available to children. This in turn requires sensitive intercultural awareness, to facilitate effective metalinguistic communication about the sound of language. It is not necessary for teachers to know the detailed phonology of each learner's language. However, it can be extremely helpful for them to understand that sublexical units that seem objectively obvious to themselves can be anything but obvious to speakers from different language and literacy backgrounds.

Perhaps the best 'tip' that advanced phonetic science can offer pronunciation teachers, then, involves what to do when learners seem to respond inappropriately to advice or feedback about pronunciation. In such situations, it can be useful for teachers to resist the urge to offer detailed descriptions of sublexical units in terms that seem 'simple' or 'basic' from their own point of view. Rather, tuition can focus on larger units of speech, comparing and contrasting words or phrases in ways that help learners notice the similarities and differences that seem obvious to target-language speakers, and thus gradually come to conceptualise and recognise the sublexical units for themselves. Couper (e.g. 2015) offers practical advice on how to recognize and address problems of metalinguistic communication between teachers and learners. One common situation, for example, is that explanations referring to syllables are misunderstood by learners who have different concepts of what a 'syllable' is. The key to effective metalinguistic communication, as Couper explains, is for teachers and learners to collaborate in developing 'socially constructed metalanguage' that is clear to both parties.

Of course, any communication is liable to break down from time to time – and intercultural metalinguistic communication is especially vulnerable. The good news is that effective communication does not require 'getting it right' the first time, every time. Rather it requires skilful, empathic, collaborative negotiation of meaning, through a recognition of, and recovery from, misunderstanding (Chandler 1994; Hua 2019 Section 8.2; Fraser 2011). These are intercultural skills that many teachers already possess and that they can – with appropriate tuition in the 'relativity' of sublexical concepts – readily adapt to phonological metalanguage.

Conclusion

Like any field, phonetic science has its specialist terminology and theoretical perspectives, which can be difficult for students of applied phonetics and phonology. One solution is to simplify the technicalities – and this can be useful in some situations. However, some branches of APP require deeper insight into the nature of speech than this approach allows. For those, it can be useful to recognize that the difficulty students face is not technical but conceptual. Learning phonetics and phonology requires 'unlearning' some misconceptions about language and speech that are deeply entrenched in everyday common knowledge, such as the belief that speech is a sequence of discrete invariant units like letters on a printed page. This chapter has outlined one way this unlearning can be achieved, and discussed some advantages for two branches of APP: helping with second language pronunciation and avoiding injustice in criminal trials.

Related topics

conceptualizing language learning and education; language teaching methodology; literacy; psycholinguistic approaches to language learning; sociocultural and cultural-historical theories of language development; intercultural communication; forensic linguistics

Further reading

Derwing, T. and Munro, M. (2015) *Pronunciation Fundamentals: Evidence-based Perspectives for L2 Teaching and Research*, Amsterdam: Benjamins. (Excellent overview of research on teaching and learning second language pronunciation.)

Fraser, H. and Loakes, D. (2020) 'Acoustic injustice: The experience of listening to indistinct covert recordings presented as evidence in court', *Law Text Culture*, 24: 405–429. (Non-technical but well-referenced account of findings of advanced phonetics relevant to forensic, and other, applications.)

Ladefoged, P. and Disner, S. (2012) *Vowels and Consonants: An Introduction to the Sounds of Language*, 3rd ed., New York City: Wiley-Blackwell. (Detailed but accessible introduction to concepts across multiple branches of phonetic science.)

Port, R. (2007b) 'The graphical basis of phones and phonemes', in M. Munro and O.-S. Bohn (eds.), *Language Experience in Second Language Speech Learning: In Honor of James Emil Flege*, Amsterdam: Benjamins, pp. 349–365. (Insightful review of everyday evidence showing phonemes are not the basic units of speech perception that they seem to be.)

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18

Literacy

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Introduction

Applied linguistics has always been a problem-solving field. Over the past few decades, literacy studies scholarship has focused attention on when, how, under what circumstances literacy practices emerge, take shape, circulate, and transform across a wide range of contexts. A growing interest in transnationalism, translanguaging, critical literacy, multiliteracies, and multimodality has prompted scholars from the fields of literacy studies and applied linguistics to consider the relationship between literacy practices, language learning, and language use. With attention to the relationship between literacy/literacies (including multilingual literacies, digital literacies, multimodal literacies, and critical literacy) and language learning or use across contexts, this chapter illuminates the promise of drawing on contributions from literacy studies scholarship to pursue the central concerns of applied linguistics.

This chapter explores questions such as 'What does literacy have to do with applied linguistics?' and 'What might a view of literacy as a social, cultural, historical, ideological, and/or material practice contribute to the study of language learning, language use, discourse, and identity?' The main goals of the chapter are to (1) provide an overview of impactful scholarship from the field of literacy studies and (2) demonstrate that it has relevance to the concerns and interests of applied linguists.

Historical perspectives

Until the early 1980s, the term 'literacy' was commonly used to capture a very specific kind of phenomenon (the skills involved in decoding and producing texts) and the term 'literate' meant the ability to read or write letters and/or symbols in a way that facilitated meaning-making and comprehension. This view of literacy emphasized the cognitive dimensions of meaning-making, phonics (sound-symbol relationships), and individual achievement. Literacy was conceived as a linear and predictable process, and the focus was on the steps of how to acquire or teach the formal literacies of schooling.

Ever since Brian Street conducted fieldwork in Iran in the early 1980s, 'new literacy studies' scholarship have investigated not only the process of decoding sound-symbol-meaning

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relationships but, also, the social contexts of literacy learning, teaching, and use. Street (1984) found that the various literacy practices that existed in an Iranian village reflected a range of different religious, economic, and educational goals and priorities. Rather than view literacy as a neutral set of cognitive skills acquired by individuals in a linear fashion, he argued that literacy is better viewed as a social practice located in and influenced by a wide range of factors (e.g. cultural, historical, institutional, ideological, political). Street (1984, 1995, 2003) and other literacy researchers, such as Heath (1983), Collins (1986), Scribner and Cole (1981), and Gee (1990), interrogated widely circulating assumptions about what 'counts' as literacy, for whom, and in what contexts.

At the time, New Literacy Studies (NLS) scholarship challenged the universalist claims made by Walter Ong (e.g. that there is a great divide between orality and literacy, and that literacy is superior to orality). According to Street (1995), Ong's (1982) theory 'turns out on examination to be an account of the particular literate practices of a subculture within his own society, specifically the academic subculture of which he himself is a part' (150). NLS scholarship has demonstrated how important and productive it is to consider the *interactions* between orality and literacy, as well as the many ways in which both are 'embedded in particular social practices' (Street 1995: 151; see also McCarty 2005). Building on the understanding that the *contexts, purposes, audiences, ideologies, and sponsors* of literacy are important, NLS scholars (e.g. Collins 1986; Collins and Blot 2003; Gee 1996; Heath 1983; New London Group 1996; Street 1984, 1995) examined the contexts in which literacy was defined, taught, learned, and used. In contrast to the *autonomous* or *universalist* approaches to literacy (e.g. Ong 1982; Goody and Watt 1975), NLS scholars adopt an *ideological* perspective on literacy.

A number of important and useful theoretical (and methodological) contributions have emerged from this early work. As one example, the distinction between a *literacy event* (Heath 1983) and a *literacy practice* (Street 1984) has been influential. A literacy event is any event that involves reading or writing, or any 'occasion in which written language is integral to the nature of participants' interactions and their interpretive processes and strategies' (Heath 1983: 319). Viewing literacy as a social practice with locally specific historical and cultural dimensions, NLS scholars have made important and lasting contributions to theories of literacy. For instance, Scribner and Cole (1981) found that the letter-writing practices of the Vai in Liberia can be understood as a set of 'socially organized practices which made use of a symbolic system of systems as well as a technology for producing and disseminating it' (Baynham and Prinsloo 2009: 3).

However, even though theories of literacy have advanced significantly since the 1980s, simplistic generalizations (and myths) about literacy's power and potential remain robust in discourses of learning and schooling. Collins and Blot (2003) point out,

> The central claims of the [literacy] thesis are that writing is a technology and transforms human thinking, relations to language, and representations of tradition, a technology that also enables a coordination of social action in unprecedented precision and scale, thus enabling the development of unique social and institutional complexity.
>
> *(17)*

In response, NLS scholars have endeavoured to identify what/whose agendas such assumptions/myths serve. Gee (1996), for instance, identified how literacy myths have throughout history served the political goals of a small but powerful minority, usually to increase their power and control:

> The most striking continuity in the history of literacy is the way in which literacy has been used, in age after age, to solidify the social hierarchy, empower elites, and ensure

> that people lower on the hierarchy accept the values, norms, and beliefs of the elites, even when it is not in their self-interest or group interest to do so.
>
> *(36)*

Another framework that has had a profound influence on how literacy was defined and understood is critical literacy. According to Luke (2012), critical literacy

> has an explicit aim of the critique and transformation of dominant ideologies, cultures and economies, and institutions and political systems. As a practical approach to curriculum, it melds social, political, and cultural debate and discussion with the analysis of how texts and discourses work, where, with what consequences, and in whose interests.
>
> *(5)*

Drawing on Freire's critical pedagogy, critical literacy proponents ask questions such as 'What are we helping students to learn? Why, exactly, do we think it is important that people should read and write? Why is conventional literacy instruction so confining, so oppressive?' By highlighting the 'authoritarian nature' of efforts to provide basic or functional literacy, Freire and others have theorized the restrictive nature of conventional literacy instruction and examined how distinctions based on class, race, and language have long influenced access to quality literacy instruction. Since then, literacy scholars have used the critical literacy perspective to identify, document, and analyze inequities and discrimination in access to schooling and power (e.g. Luke 2012; Rogers and Mosley Wetzel 2013; Vasquez et al. 2019; Watahomigie and McCarty 1996).

Critical issues and topics

Bartlett and Holland (2002) and Bartlett (2007, 2008) have examined the different worlds (e.g. life worlds, literacy worlds, linguistic worlds) that might shape individuals' understandings of what literacy is and does in specific contexts and situations (Bartlett 2008). Focusing on 'the space of literacy practices' such work highlights the ways that culture is always and everywhere a dynamic, emergent, situated set of practices. Brandt and Clinton (2002), Hull and Schultz (2002), and Bartlett and Holland (2002) explored the time and space dimensions of literacies and their influence on the processes, events, and practices involved with reading and writing in a 21st-century world. Many literacy scholars continue to examine the social, material, and ideological consequences of literacy by comparing how things are in theory with how things are on the ground (e.g. Bartlett 2007; Brandt 1998, 2001; Farrell 2009; Luke 2004; Martin- Jones et al. 2009; Pahl and Rowsell 2010; Schultz 2001; Street and Lefstein 2007; Warriner 2007b; Warschauer 2009). The term *literacies* is now used to represent multiple types of meaning-making practices. According to Pahl and Rowsell (2010), 'the word literacies signals that literacy is multiple, diverse, and multilingual and spans domains of practice, from home to school to community, and in each domain there are different literacies' (5).

The spatial turn in literacy research (Leander and Sheehy 2004) has turned attention to information and communication technologies – and how they influence what counts as literacy, who gets to participate in which communities of practice, and the material consequences (Luke 2004) of the opportunities enabled by various technological affordances. This scholarship examines the relationship between modes of representation and issues of content, how learners and learning might be influenced by differences in mode, whether 'learning' happens differently when we engage with the world primarily through image rather than through speech or writing, and what is accomplished (e.g. aesthetically, materially, or symbolically) when images supplement or replace writing.

Such work has also documented and analyzed the kinds of literacies, multilingual literacies, and digital literacies that are associated with new technologies, forces of globalization (and homogenization), and individual or community efforts to maintain affiliations with multiple communities of practice. As Baynham and Prinsloo (2009), argue,

> literacy goings-on are always and already embedded in particular forms of activity; that one cannot define literacy or its uses in a vacuum; that reading and writing are studied in the context of social (cultural, historical, political and economic) practices of which they are a part and which operate in particular social spaces.
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> *(2)*

Over the past couple of decades, viewing literacy as a social practice influenced by cultural, historical, and ideological forces has produced work investigating academic literacies (e.g. Canagarajah 2004; Curry and Lillis 2004; Ivanic 2009), adolescent literacies (Lam 2000, 2009; Lam and Rosario-Ramos 2009; Yi 2008), bi-/multilingual literacies (e.g. Hornberger 1989, 2003; Martin-Jones and Jones 2000; Martin-Jones et al. 2009; Martínez-Roldán and Fránquiz 2009; Noguerón-Liu 2020; Reyes and Azuara 2008; Reyes and Moll 2008; Warriner 2012), transnational literacies (Bartlett 2007; Black 2007, 2009; Campano 2007; Duran 2016; Jiménez 2009; Lam 2006, 2009; Lam and Warriner 2012; Rubenstein-Avila 2007; Warriner 2007a, 2007b, 2009; Yi 2007, 2008), digital and multimodal literacies (Alvermann 2010; Kress 2000, 2003; Jewitt 2008; Koutsogiannis and Adampa 2012; Kovalik and Curwood 2019; Leander and Sheehy 2004; Mills et al. 2010), multimodal literacies (Campano 2007; Jewitt 2008; Kress 2003, 2010), multimodal storytelling (e.g. Vasudevan 2006; Vasudevan et al. 2010), artifactual literacies (Pahl and Rowsell 2010; Karam et al. 2021), and critical literacy (Alvermann 2012; Janks 2002; Johnson and Vasudevan 2012; Luke 2012; Morgan 1997; Rogers and Mosley Wetzel 2013; Vasquez et al. 2019). Although the study of bilingual literacies, biliteracies, multiliteracies, transnational literacies, and translanguaging is not new, more attention is now paid to these topics in scholarly work exploring literacy and language as social practices (Bach 2020; García and Kleifgen 2020; García and Wei 2014; Li 2011; Noguerón-Liu 2020; Orellana et al. 2003). According to García and Kleifgen (2020), 'a translanguaging approach to doing literacy acknowledges what Heath (1983) called the protean shapes of literacy events, in which spoken and written literacies are always intertwined and shifting, surrounded by other modes in mutual elaboration' (558).

Current contributions and research

Critical literacy – or 'use of the technologies of print and other media communication to analyze, critique, and transform the norms, rule systems, and practices governing the social fields of everyday life' (Luke 2004; see also Freire and Macedo 1987) – continues to remain a useful and generative lens. By expanding definitions of what counts as literacy, we (teachers and researchers) might begin to recognize and value more types of meaning-making, engagement, and responses to instruction. Lau's (2012) participatory action research approach shows that a critical perspective on literacy is important for English learners because it "encourages students to become active readers and writers of cultural texts so that they can create their own meanings in order to shape and transform their social conditions" (325).

With an understanding of critical literacy as 'a way of being, living, learning, and teaching', Vasquez et al. (2019) argue that the benefits of a critical literacy approach are multiple:

'students learn as much about critical analysis from being actively involved in the design and production process as they do from their questioning of texts produced by others' (302–303).

There has recently been a renewed interest in the material dimensions of literacies (Luke 2004; Warriner 2007a, 2007b) and also in *artifactual literacies* (Pahl and Rowsell 2010). The notion of artifactual literacies has helped literacy studies scholars theorize the material dimensions of literacy practices, pedagogies, and various contexts of teaching and learning. As Pahl and Rowsell (2010) explain, it is important to understand the role of artefacts, objects, and multimodality in literacy practices and events; how artefacts connect communities; and the value of artifactual critical literacies. Another influential set of contributions comes out of the careful study of multimodal literacies from a semiotics perspective (Hull and Nelson 2005; see also Newfield 2015). Whether the goal is 'rethinking composing' in ways that take into account recent (and upcoming) advances in technology and media (Vasudevan et al. 2010), theorizing the decolonizing potential of multimodal critical inquiry (Campano et al. 2020), or revisiting the New London Group's pedagogy of multiliteracies (Leander and Boldt 2013), literacy studies scholarship continues to move away from a singular focus on texts, reading and writing to consider a wider range of practices, modalities, audiences, and contexts.

A growing number of studies have advanced researchers' and practitioners' understandings of the situated ways that digital literacy practices intersect with and support the educational experiences and language learning efforts of recently arrived immigrants in the US context. Whether analyzing how teenagers use the Internet to position themselves in particular ways in and through writing (Lam 2000; McGinnis et al. 2007), how fanfiction promotes language learning and literacy development by engaging adolescents in meaningful activities (Black 2007, 2009), or the 'biliterate composing practices' of high school students from immigrant families (Yi 2007, 2008), this work continues to raise questions about how literacy is defined, by whom, and with what consequences (especially for poor or immigrant youth). Such work opens up spaces for identifying, documenting, and analyzing how those on the move combine multiple semiotic resources in order to learn English, maintain connections with people and practices from their 'homeland', and establish new sets of practices valued in the communities of practice they wish to join. As Jiménez et al. (2009) argue, 'including transnational and community literacies can help students learn about diversity in their communities and help English-language learners become more fully engaged in their literacy and content learning' (p. 16). Recent work on the digital literacy practices of immigrant youth raises important questions about the intersections between second language learning processes, social identities, and multilingual literacies (e.g. Purcell-Gates 2013). It also gives attention to the complicated intersections between learning, language, and literacy for individuals often overlooked in the field of literacy studies. Such work illustrates effectively and powerfully the many common interests and concerns that literacy studies and applied linguistics have and demonstrates the value of identifying and analyzing the digital literacy practices of multilingual, multinational individuals and communities living in a variety of contexts.

More attention has also been paid to 'activist literacies' (Simon and Campano 2013); the affective dimension of literacy (Lemke 2013; Wargo 2015); and anti-racist and/or decolonizing approaches to multiliteracies (García et al. 2021; Kinloch 2009; Kirkland 2013; Schroeter 2019). As García et al. (2021) observe, 'we conceptualize pedagogy as more than a series of "strategies", seeing it instead as a way to create in-school spaces that leverage the language and knowledge systems of racialized bilingual students' (16). Whether applying the lens of critical literacies, artifactual literacies, transnational literacies, translanguaging and literacies, or raciolinguistics, the study of literacy requires looking beyond practices of decoding and taking into account multiplicity, complexity, and a nuanced understanding of context (e.g. situational, institutional, cultural, historical, ideological).

Main research methods

Literacy studies scholarship often adopts an anthropological lens and utilizes ethnographic methods to explore (across cultures, contexts, situations, and interactions) what gives meaning to particular literacy events and the practices identified and documented. Researchers sometimes combine microanalysis of language and literacy with a macroanalysis of discourse, ideology, and power. Yet advances in how we theorize literacies, multiliteracies, multimodal and digital literacies, and critical literacy have also influenced the methods and methodologies that researchers use. For instance, adopting a translanguaging stance also typically requires a shift in what is valued or recognized epistemologically (García and Kleifgen 2020):

> Taking up a translanguaging framework would mean that the work of literacy scholars would shift its focus so as to bring to the foreground other epistemologies, other imaginaries of the world, other sign systems. Literacy scholars would then decenter the claim that literacy in a dominant language done in the ways of schools is the only key to success.
>
> *(567)*

Examining the 'social semiotic multimodal perspective on learning' has required innovative conceptual and methodological tools. Scholarship investigating social semiotics and/or multimodal literacies demands careful reflection on how to design a qualitative study that allows the tracing of practices in a networked world (Stornaiuolo and Hall 2014); how to examine literacies of authorship in social media communities (Stornaiuolo et al. 2013); how to analyze mobility in relation to scaling and inequity (Stornaiuolo and LeBlanc 2016; Smith et al. 2018); and ways to map the literacy practices used in makerspace (Hall and Stornaiuolo 2020; Stornaiuolo et al. 2018). Smith et al. (2015) reflect on the potential for 'envisioning' or 'visualizing' to expand what the object of inquiry might be in literacy studies.

Recommendations for practice

In recent decades, the study of literacy as a social practice has taken up 'questions of schooling' (Baynham 2004; Baynham and Prinsloo 2009; Stroud and Prinsloo 2015) in critical and productive ways. In addition, researchers continue to examine the relationship between literacy as a social practice (Barton 2001, 2009) and larger cultural, historical, and ideological influences on the ways in which we think, talk, and write about literacy (Street 2004) and the very consequential 'material consequences of literacy' (Luke 2004) for both individuals and communities. By looking across a range of contexts, practices, and communities, we have advanced our understanding of the many different kinds of factors (cognitive, interactional, ideological, cultural, and institutional) that influence literacy practices in different situations and contexts. Literacy studies research has, over time, contributed to an emerging understanding that students' lives, experiences, and identities cannot be separated (in theory or practice) from their language and literacy learning processes (or outcomes). Teachers and teacher educators have looked for inspiration and guidance from scholarship on critical literacy, multimodal literacy, artifactual literacy, and transnational literacies in order to understand what their students and their families bring to their formal and informal learning experiences.

The long-standing interest in how literacy events and practices are embedded within (and shaped by) particular contexts continues to influence researchers as they work to identify literacy events, literacy practices, and the relationship between events, practices, and the trajectories of individuals and their communities. By going outside schools and classrooms, literacy

scholars have gained important insights about the various types of literacies, multiliteracies, multimodal literacies in use, the function of those practices, and the beliefs or views held "by members of communities engaged in them" (Duran 2016). Alvermann (2012), for instance, demonstrates the value of taking a critical literacy perspective while examining adolescents' digital media practices:

> [T]he agency that teachers and learners assume in classrooms where critical literacies prevail has the potential to become nothing short of an antidote to deprofessionalizing mandates issued by distant forces, often with little or no direct knowledge of how schools work.
>
> *(64)*

According to Alvermann (2012), 'critical literacy instruction that looks at how one is positioned to make a difference, or even which differences make a difference, can open up new possibilities for exploring whose voice counts and why' (65; see also Rogers et al. 2013). Practitioner-focused research by literacy studies scholars has also examined issues of mobility in relation to the use of digital mobile technologies (Ehert and Hollett 2014), the use of digital literacies for liberatory purposes (Haddix and Sealey-Ruiz 2012), and cosmopolitan literacies (Spires et al. 2019). As Johnson and Vasudevan (2012) point out, 'teachers must expand current definitions of critical literacy to include a performance lens that recognizes embodied texts and responses' (35). Their analysis of students' existing embodied and multimodal experiences and texts demonstrates the pedagogical value of this perspective:

> This means creating curricular conditions that position students' visible and invisible critical performances at the center of classroom inquiry, that position students as critically literate in a range of modes and genres, effectively producing critical literacies that look and sound different, that surprise students and teachers, and provoke questions about the ways we define, identify, and assess what it means to be critically literate in school.
>
> *(40)*

In addition, there have been advances in the study of bilingualism in relation to digital multimodal composition (Smith et al. 2020) and of composing for 'ambient audiences' (Hall 2015). Hall (2015), for instance, examined 'the social aspects that emerge when writing in a public space like a classroom' (309) in order to understand how an 'ambient audience' influences students' productivity, understanding, and learning. With attention to 'their entire semiotic repertoire' and to 'the complex performances and human activities enacted by multilinguals within social space' (García and Kleifgen 2020: 558), teachers and researchers are now encouraged to adopt practices that '[disrupt] established monolingual and monoglossic language and literacy understandings to make room for translanguaging' (559). Indeed, García and Kleifgen (2020) urge practitioners to adopt pedagogical practices that value and use the resources that bilingual students have:

> This pedagogy positions translanguaging as a right of learners to bring themselves with their linguistic repertoires fully into the classroom so as to grow and thrive academically, and it also transforms them from being positioned as inferior learners to being recognized as having valuable language and literacy practices and ways of knowing that extend beyond mandated curricula and standardized exams.
>
> *(559)*

More recently, Mohamed (2023) has examined how Somali refugee families living in Nairobi, Kenya experience and negotiate their religious and secular identities through literacies. Her findings demonstrate the ways that Muslim youth talk about and use specific literacy practices – and that certain minoritized languages can be valued and prioritized within communities, even by those who do not understand or use the language regularly.

Future directions

Literacy studies scholars continue to actively work to break down binaries, challenge dichotomous thinking, and bridge previously unconnected areas of intellectual inquiry by examining literacy practices/literacies through lenses that broaden their scope of inquiry. In numerous ways, recent and/or current work on literacy as a social practice expands the scope of inquiry to include a much wider range of practices, to show the various ways that literacy practices might be shaped by locally specific dynamics, and to analyze the influence of context. Building on work produced over the past three decades, literacy studies scholarship has recently turned more attention to the influence of rapid technological advancements, the continued movement of goods and people across borders, multilingual and/or multimodal dimensions of literacy practices or events, and growing distinctions between the rich and poor. In addition, greater attention to the embodied, innovative, and emancipatory practices of learners (Ehret and Hollett 2014; Haddix and Sealey-Ruiz 2012; Johnson and Vasudevan 2012) and the semiotic power of multimodality (Hall 2015; Leander and Boldt 2013) has prompted researchers to rethink the theoretical and pedagogical implications of their research findings. Drawing on frameworks informed by critical literacy and critical race theory, Lemrow (2017) has proposed a 'theory of creolization' and 'multiraciality' to map race in relation to language, examine translingualism (see also Canagarajah 2013) and to explore the identities of biracial and multiracial students:

> In taking seriously the emergence and portrayal of these knowledge productions at the interstices of race, class, nation, and identity we can see that embracing student voice and artefact offers us not only critical pedagogical reading and writing tools, but legitimate reflections on race and society in the twenty-first century.
>
> *(459)*

Within recent scholarship conducted across a range of different contexts, we can see the continued value of a critical literacy perspective on learning and teaching, as well as increased attention to how engagement in particular literacy practices mediates learning and identity; the growing prevalence of new technologies in such processes; and the relationship between multilingualism, multiliteracies, and multimodalities.

Summary

Widdowson (2003: 14) argued that applied linguistics 'does not impose a way of thinking but points out things which might be worth thinking about'. In contrast, one might say the field of literacy studies does value certain ways of thinking. Moving from a dichotomous distinction between orality and literacy to the notion that, like all social practices, literacies are situated and multiple, literacy studies scholarship has become a field of inquiry that intersects with a number of other intellectual pursuits, including the pursuits of applied linguistics but also those of the social sciences more generally.

The field of applied linguistics benefits from an understanding of literacy as a social practice that is influenced by cultural, historical, and ideological factors. A systematic examination of literacy practices supports many of the current and emerging research agendas in the field of applied linguistics. Situated at the boundaries between different fields of inquiry, literacy studies scholarship remains both a conceptual undertaking and a systematic examination of empirical data. Sometimes focused on what is going on outside of formal educational contexts, sometimes returning to questions of schooling and pedagogy, and often considering the material dimensions of literacy, literacy studies scholarship examines literacy as a set of social practices that are both local and global (Prinsloo and Baynham 2008). Whether we are examining reading, writing, digital/multimodal literacies, or multilingual literacies, literacy studies scholars are increasingly aware of the need to also examine the role of time and space – within and across contexts, within and across communities, and within and across practices.

Related topics

identity; language and migration; language socialization; multilingualism; multimodality; social semiotics; translanguaging

Further reading

García, O. and Kleifgen, J. (2020) 'Translanguaging and literacies', *Reading Research Quarterly*, 55(4): 553–571. (This article provides a useful overview of the development of the concept of translanguaging in relation to bilingual and multilingual literacies. It urges practitioners and researchers to consider the actions of bilingual/multilingual students, the importance of metalinguistic awareness, and the implications of research and pedagogy that centre multilingual students.)

Lam, W. S. E., and Warriner, D. (2012) 'Transnationalism and literacy: Investigating the mobility of people, languages, texts, and practices in context of migration', *Reading Research Quarterly*, 47: 191–215. (This review of research offers a synthesis and analysis of research studies that address issues of language and literacy practices and learning in transnational contexts of migration. Studies reviewed examine practices in families and communities, practices among youth and within educational settings, and practices with transnational media [broadcast and digital communications]. This review highlights important role of language and literacy practices in constructing and maintaining social relations across borders.)

Lemrow, E. M. (2017) 'Créolization and the new cosmopolitanism: Examining twenty-first-century student identities and literacy practices for transcultural understanding', *Journal of Multilingual and Multicultural Development*, 38(5): 453–467. (This article examines rapid demographic shifts in relation to student identities and literacies through the lens of creolization theory – which, the authors argue, represents a paradigm shift in education.)

Noguerón-Liu, S. (2020) 'Expanding the knowledge base in literacy instruction and assessment: Biliteracy and translanguaging perspectives from families, communities, and classrooms', *Reading Research Quarterly*, 55(S1): S307–S318. (This article argues that the literacy practices of emergent bilingual students should be considered and valued in reading curriculum, assessment, and teacher education. It serves as a critical response to 'science of reading' proponents and suggests alternative ways to teach and evaluate processes of decoding and reading.)

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19

Genre analysis

John Flowerdew

Introduction

The term *genre* is borrowed from French, where it has the meaning of type or kind, but the concept goes back to Aristotle. It was first used in English to refer to different types of literature – novels, poetry, and drama – each of these macro-genres having their own sub-genres – historical novels, romantic novels, epic poems, narrative poems, comedy, tragedy, and so on. In the field of applied linguistics, however, genre refers to different types of communicative events (written or spoken) associated with particular settings and communicative purposes. Examples would be, in the field of business, various types of reports and meetings, and in the academic field, research articles and seminars, among many, many others. According to this applied linguistics view, genre refers to 'a distinctive category of discourse of any type, spoken or written, with or without literary aspirations' (Swales 1990: 33). Discourse in this definition does not only refer to text, however, but also encompasses context. Context is not something that exists apart from the text, a container within which it is located, but is a dynamic counterpart, the two interacting in a mutually constitutive way; through their actions, individuals simultaneously create both contexts and their associated texts.

Genres are typically employed by select groups of people, or discourse communities (Swales 1990), and are characterized by typical structures, stages of development, and lexico-grammatical features (Swales 1990, 2004; Bhatia 1993, 2004; Berkenkotter and Huckin 1995). In addition to linguistic and social features, Bhatia (1993, 2004) and others have argued that genres need to take account of cognitive factors, thereby allowing for a dynamic conception of genre which incorporates tactical aspects and individuals' private intentions, allowing for such phenomena as mixing and bending of generic norms. The characteristic features of genres give them what Bhatia (1993, 2004) refers to as generic integrity

Genres are implicated with power. Some genres give access to powerful institutions, very obvious examples being genres associated with education, such as academic essays, or genres associated with bureaucracy, such as job interviews. Control over genres of power determines status and ranking within social hierarchies. That is why some educationists have emphasized the importance of teaching genre knowledge and the ability to manipulate genres in educational

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and bureaucratic systems (Martin and Rose 2008). Such knowledge and skill give access to power. Lack of such knowledge and skill means social deprivation.

Individual genres are related to other genres in groupings, groupings which exhibit strong intertextual relations. Research into genre groupings yields greater insights than focusing on a single genre.

Historical perspectives

The term *genre* was used by Hymes in the 1970s as part of his model for sociolinguistic research, as represented by the mnemonic SPEAKING, where the final letter *G* stood for *genre*, conceived of as a kind of speech event, such as a story. Genre thus became important in the ethnography of speaking/communication (Hymes 1962, 1974), an approach to discourse analysis that draws on ethnographic methods. The concept of genre had earlier been made use of by the Russian linguist Bakhtin in his essay 'The Problem of Speech Genres' (1952). Genres were conceived of by Bakhtin in this essay as relatively stable types of language associated with particular spheres of activity. Along with Bakhtin's other ideas on language and rhetoric, this essay became influential in applied linguistics in the 1980s as fitting in with the more communicative and contextual approach to language being adopted at the time.

Genre theory is probably best known by applied linguists, however, in the context of English for specific purposes (ESP), where Swales (1990) theorized the concept in his monograph, *Genre Analysis: English in Academic and Research Settings*. Swales (1981/2011) and Tarone et al. (1981) have been independently credited with the innovation of the term in ESP, although in a recent article Swales (2020) himself has attributed it to Mohan in a presentation at the 1977 TESOL convention and in the subsequent proceedings. However, these publications are relatively obscure and difficult to come by, and it is Swales's (1990) monograph that really popularized the concept as an important one in ESP and applied linguistics more generally.

Other important figures employing the concept of genre are Martin and Rose (e.g. 2008), who use it in their application of systemic functional linguistics (SFL) to the educational setting in describing the types of language children need to acquire during schooling, and Miller (e.g. 1984), who, in the context of composition studies, emphasizes that the linguistic form of a genre, or the text, is only a manifestation of underlying recurrent social action, which is more essential to the concept. Previously, Hasan, in an earlier application of SFL, attempted to describe text structure in terms of 'generic structure potential', 'the total range of optional and obligatory elements and their order' of a genre (Hasan 1985: 64). Configurations of contextual features (field, tenor, and mode), according to Hasan, allow for predictions of text sequencing and ordering of elements, which can be obligatory, optional, or recursive. Obligatory elements and their sequence define the genre and optional elements may account for variation in texts that belong to the genre.

Critical issues and topics

Traditions of applied genre analysis

Different approaches to genre are apparent within different traditions, or schools, of applied genre analysis. Following Hyon, many researchers identify three such traditions: the ESP tradition, as represented by Swales (1990, 2004); the Australian genre tradition, or Sydney School, led by Martin (1985); and the North American new rhetoric tradition (now known as rhetorical genre studies [RGS]), led by Miller (1984). The ESP and the Australian traditions take

a linguistic approach, applying functional models of grammar and discourse and concentrating on the lexico-grammatical and rhetorical realization of the communicative purposes embodied in a genre, whereas the RGS group is less interested in lexico-grammar and rhetorical structure and more focused on situational context – the purposes and functions of genres and the attitudes, beliefs, values, and behaviours of the members of the discourse communities within which genres are situated.

Considering these three approaches in more detail, the ESP tradition was developed by Swales (1990, 2004) and was motivated by a desire to develop pedagogical materials in the context of English for academic purposes (EAP). The emphasis is on developing formal descriptions for users of English as an additional language of the various genres that they are likely to encounter in the course of tertiary-level study, with a focus on the generic moves and the lexico-grammatical patterns typically used to express them. The best-known work of this type is Swales' (1990) 'create a research space' (CARS) model for the introductions to research articles. According to this model, such introductions typically progress through a sequence of rhetorical moves, as the writer creates a metaphorical space for the research that is to be presented in the main body of the article. These moves are (1) establishing a territory, (2) establishing a niche, and (3) occupying the niche. They thus follow a situation, problem, and solution pattern. Each of these moves is in turn performed by means of a number of sub-moves, or steps. Thus, move 1, establishing a territory, typically has the following three steps: (1) claiming importance of the topic, (2) making generalizations about the topic, and (3) reviewing items of previous research. Once these moves and steps have been identified, their typical entextualizations are described in terms of lexis and grammar. The complete description can then be employed in the preparation of pedagogical materials. Similar modelling is provided by Bhatia (1993) for some of the professional genres.

The work of researchers in the Australian genre tradition, like the ESP School, was driven by a pedagogical purpose, in their case though developing curriculum materials mainly for Australian primary and secondary schoolchildren. Similar to the ESP tradition, the Sydney School sees genres as 'staged, goal-oriented, purposeful activity' (Martin 1985: 25) and the role of the analyst is to describe the stages and lexico-grammatical patterning of genres. Just as for the ESP School also moves have their sub-moves, or steps, so for the Sydney School, there are phases within each stage. However, whereas for the ESP school genres are very much rooted in discourse communities, and they have names ascribed to them by their professional users, such as research article, laboratory report, lecture, and conference presentation, for the Sydney School the focus is on text types, referred to as elemental genres, such as recount, procedure, narrative, description, and report, although these text types do combine together to form what are referred to as *macro-genres* (laboratory reports, essays, novels, etc.). The text types are more generalized patterns and not specific to particular communities and thus more suited to their school audience. Another difference with the Australian tradition is that it is located within a larger theory of language, that of SFL, and that theory's conception of register as consisting of the three contextual parameters of field, tenor, and mode and their associated ideational, interpersonal, and textual functions. These modes and functions account for the relations between context and text. (See Martin and Rose [2008] and Rose and Martin [2012]) for accounts of the work of the Sydney School.)

As already stated, the RGS approach to genre is more contextual than the two other traditions reviewed. Its leading proponent, Miller, argues that 'a rhetorically sound definition of genre must be centered not on the substance or the form of discourse, but on the action it is used to accomplish' (1984: 151). While there is still a focus on standard patterns, this is not at the expense of individual variation – that is, genre performance and competence. This allows

for more emphasis to be put on genre theory to better examine cultural and psychological factors, such as identity, affect, and cognition. Genre performances are both individual and shared (Devitt 2015). Investigative methods for RGS are ethnographic rather than linguistic, and genre descriptions take the form of accounts of field visits reporting on the contexts of and actions performed by texts in these situations. Data is based on participant observation, interview, and document collection rather than a corpus of texts. To take an example, Tardy (2009) used classroom observation, interviews with students and teachers, and analysis of student texts to conduct a longitudinal study of four multilingual graduate students, tracking their developing competence in performing the genres in their disciplines (engineering and computer science). In this way, she showed how graduate students build genre knowledge as they progress through their educational programmes.

Discourse community

Discourse community was referred to earlier as one of the defining characteristics of genres. Swales (1990) proposes six criteria for recognition of a discourse community: (1) a broadly agreed set of common public goals, (2) mechanisms of intercommunication among its members, (3) such mechanisms being used to provide information and feedback, (4) possession of one or more communicative genres, (5) specific lexis pertaining to its genres, and (6) a threshold level of members with a suitable degree of relevant content and discourse expertise. Swales (1990: 58) refers to discourse community as 'the parent of genre', and indeed, the two concepts are in a reflexive relationship; a given genre is characteristic of its discourse community and a discourse community can be characterized by its genres. Furthermore, analysis of a genre is a powerful tool for highlighting a discourse community's beliefs, practices, and ways of thinking – its culture, in other words. Both ESP and RGS put great emphasis on discourse community, while the Sydney School eschews the concept, following a Hallidayan approach to genre and context, as referred to earlier.

Text/context dichotomy

When it comes to the methodology of genre analysis, Flowerdew (2002) identifies a fundamental distinction between two approaches: a more linguistic approach, on the one hand, and a more situational, or contextual, one on the other. The linguistic approach is more interested in describing the rhetorical structure and lexico-grammar of the text, while the contextual approach is more interested in the describing the situational context in which the text occurs. The ESP and Sydney School traditions tend to take the former approach while RGS takes the latter.

Uptake and genre relations

An important notion highlighted by a study involving multiple genres such as that of Tardy (2009) referred to earlier is that of uptake – how genres interact with each other, how they establish intertextual relations, and most importantly, how no genre nor indeed any utterance within a genre can be understood without understanding how they relate to other genres. This is a notion also developed in the ESP and Australian traditions but is most salient with RGS. Freadman (1994) uses the metaphor of tennis to illustrate it. A ball in tennis has no meaning until it is turned into a shot and the meaning of a shot can only be determined in the context of the game and the rules of the game. Furthermore, the game is only meaningful in terms of the type of game it is (a game between friends or the final at Wimbledon, for example). Similarly,

for genres, no sentence has a meaning until it is uttered in a specific context (its uptake, or perlocutionary force) and no genre has meaning until it is located in the context of the other related types of genre.

Various types of genre groupings have been identified. These groupings have been referred to as sets (Devitt 1991), systems (Bazerman 1994), chains (Räisänen 2002), and networks (Swales 2004). A genre set is a range of genres that will typically be employed by a professional group in their daily activity; for example, in the case of a lawyer, this might include letters, email messages, and client consultations. A genre system is a little different; it is the group of genres that might be involved in a complete interaction, the various genres involved in establishing a patent, for example (Bazerman 1994). A genre chain is a chronologically related set of genres in a particular interaction. Berkenkotter's (2001) study of psychotherapists and their clients shows how during a psychotherapy session a number of genres are involved, including the client's narrative during the session, the therapists' notes taken during the session, and the psychosocial assessment written by the therapist after the session. A genre network is defined by Swales (2004: 22) as 'the totality of genres available for a particular sector (such as the research world)'. It does not relate to a real-world phenomenon but refers to all of the genres that an individual has the potential to participate in. All of these groupings of related genres exhibit strong intertextual relations. Research into genre groupings in various contexts has the potential to demonstrate social roles and relationships, power dynamics, and configurations of time and space (chronotopes [Bakhtin 1981]) (Bawarshi and Reiff 2010) more so than focusing on a single genre.

Teaching and learning genre

Rhetorical consciousness-raising and guided deconstruction and reconstruction of texts

Given the pedagogic role envisioned for genre analysis, an important concept is rhetorical consciousness-raising (Swales 1990). Swales's view is that there is value to be had in raising learners' awareness of the rhetorical structures and effects of their target genres. Such a procedure is now regarded as a standard feature of what has come to be referred to as genre-based pedagogy (Paltridge 2001; Hyland 2004; Flowerdew 2015). Swales (1990: 23) highlights the importance of 'sounding right' for novices who are aspiring to gain entry into their target discourse communities. Rhetorical consciousness-raising involves learning to recognize, examine, interpret, and ultimately be able to produce texts representing a given genre. Swales (1990: 215).) enumerates a number of advantages of the approach for his graduate students of research English, as follows:

1 The problem of heterogeneous content interests in the class (medics and economists) is partially, if temporarily, sidestepped.
2 Insight into rhetorical structure is useful for both the reading and the writing of research.
3 General features are examined before specific details.
4 Discussion of rhetorical structure usefully develops in participants an increasing control of the metalanguage (negotiation of knowledge claims, self-citation, metadiscourse, etc.) which, in turn, provides a perspective for critiquing their own writing and that of others.
5 Rhetorical structure may have 'novelty' value and may thus identify the class as being different from others that participants have experienced.

6 The rhetorical element is likely to present the instructor as having something to contribute over and above methodology.

Swales also expresses the view that the development of competence in the ability to perform one genre can carry over into the acquisition of others.

While rhetorical consciousness-raising is important in the ESP approach to genre pedagogy, as already indicated, RGS is less interested in the linguistic entextualization of genre. The term *rhetorical consciousness-raising* is not used by the Sydney School, but a similar procedure is employed, involving 'guided deconstruction and reconstruction of model texts', which occurs in three stages (Rose 2012: 222):

> Deconstruction (guiding students to recognize the cultural context, staging and key linguistic features in model texts), Joint construction (guiding the whole class to construct another text in the same genre), and Individual construction (in which students write a third text in the same genre).

Problematizing the teaching and learning of genres

In contrast to the ESP approach and the Sydney School view of genre pedagogy, some writers on genre, particularly those belonging to the RGS tradition, have argued that the idea of teaching genre is problematic. The argument is based on the variability of generic forms. The stereotypical features that genre analysts identify for genres are not fixed but are subject to situational variation. Context is not an inflexible container but a constantly changing phenomenon – an 'ongoing accomplishment', in the words of Russell (2009: 8). The generic features of a political speech, for example, are likely to be different if given in parliament or on the election hustings, or on one day or another. Furthermore, such a speech given in parliament ten years ago is likely to be different to an equivalent speech given today. For this reason, Schryer (1994: 107) refers to genres as 'stabilised for now', with both stable and changing features. Because of such complexity, Berkenkotter and Huckin (1995: 487) argue that genre knowledge cannot be taught in a quick fix in a classroom, but requires 'immersion into the culture and a lengthy period of apprenticeship and enculturation'. In line with this view, RGS engages with activity theory (Cole and Engeström 1993), which conceives of learning in broader terms than transmission models, which view teaching as learnings as information passed from teacher to learner. Rather, according to activity theory, learning involves engagement with others through social activity (Russell 2009). Learning to perform a genre, according to this view, involves participation in the real world, not just a classroom.

Another argument against the 'quick fix' view of genre pedagogy is that it presents genres as following static structures and denies their flexibility and potential for individual expression and creativity. This is a position of the RGS, although the other two traditions do claim that they allow for variation. It is a question of emphasis. Some genres do follow very predictable patterns; religious rituals (such as wedding ceremonies), weather forecasts, and recipes are often cited examples. The stability of genres tends to be a reflection of the stability of the social situations or institutions in which they occur. Kress (2003) speculates that public events and their genres may be more stable than private ones. This would account for the fact that social media genres, which tend to be private and outside government and institutional control, tend to be less amenable to generic description.

The attitude to genre pedagogy taken by the three traditions is, in part, a reflection of their social and educational contexts. ESP, by definition, typically sees its role as preparing second

language learners to be able to function in clearly defined specific contexts. It is appropriate to show such learners how to function in a limited way using fairly routine linguistic formats. The success of English for research publication purposes (ERPP), a subfield of ESP, in preparing users of English as a second to write research articles and research proposals and to give conference presentations – all fairly predictable genres – is a good example of the successful application of genre-based pedagogy for ESP (Flowerdew and Habibie 2022). The Sydney School, which set itself the goal of making schoolchildren competent in the performance of the genres of power that they would need in their future lives, is focused on producing text types following pre-existing schemata, although at the same time allowing for variation (Rose 2012); for this reason, the approach was critiqued in some quarters in Australia as denying learners creativity and condemning them to conformity to the social status quo (Kress 2003). The RGS approach, situated in the context of North American composition pedagogy, is less interested in formal textual features and more with helping university students understand the social roles and actions performed by genres in their complex social contexts. The goal of writing pedagogy should not be 'the formal trappings of the genres they need to work in', according to the RGS, but to better understand enhance students' understanding of all of the 'life' embodied in texts (Bazerman 1994: 320, cited in Hyon 1996: 717).

Current contributions and research

Corpus-based genre analysis

A lot of research has been conducted in recent years into integrating corpus linguistics into genre-based approaches. Traditional genre analysis works with small numbers of texts. Swales's (2011) ground-breaking CARS model, for example, originally published as a mimeograph in 1981, was based on 48 research article introductions. Such relatively low numbers were necessarily the case because analysis had to be conducted by hand. Corpus linguistics, on the other hand, can deal with huge corpora of millions of words and is extremely powerful in investigating the quantitative distribution of lexico-grammatical features. The goal of combining the two approaches is to investigate the rhetorical and discourse organization of a large representative sample of texts from a genre, the outcome being a more reliable analysis. The book *Discourse on the Move*, by Biber et al. (2007), was ground-breaking in demonstrating a number of ways this can be done, perhaps the most fruitful being move analysis, a procedure by which representative texts of a given genre are first manually coded according to the rhetorical functions of the prototypical moves and steps and then subjected to automated corpus analysis to quantitatively identify the salient lexico-grammatical features of each of these units of meaning. A leading proponent of this methodology is Cotos (e.g. Cotos et al. 2017). Another recent development is a combination of move analysis and multi-dimensional analysis, a corpus approach that identifies the co-occurrence of linguistic features based on factor analysis and characterizes groups of texts in terms of those patterns, which can be functionally interpreted as stages in generic schematic structure (Gray et al. 2020).

Digital genres

Much genre research has been conducted in recent years with a focus on digital genres (e.g. Hafner et al. 2023; Luzón and Pérez-Llantada 2022). Given the plethora of different Internet-mediated genres, this is hardly surprising. Shi et al. (2020) identify three main types: email, website, and social media genres. An online blog, https://laurenbronsteincom.wordpress.

com/2017/02/04/examples-of-digital-genres, lists the following as examples: vlogs, podcasts, web texts, news bits/excerpts, remixes, mashups, memes, PSAs, tweets, Instagram posts, documentaries/longer videos, websites, and blogs. Heyd et al. (2016) posit the following questions to ask in terms of digital genres:

1 How does online communication pattern into structured, recognizable, and more or less discrete categories?
2 What properties are central in how we perceive and reproduce digital genres?
3 To what degree are digital genres distinct and genuinely new or related to older, pre-existing forms that may have fulfilled similar functions in pre-digital communication?
4 Which role does the high level of technical mediation (usage features that are prompted by technical necessities or by intentional design choice) play in the linguistic and communicative makeup of modern digital genres?

Clearly the use of not just linguistic resources but also digital and multimodal affordances in these genres requires a different mode of analysis when it comes to genre entextualization, although the more ethnographic methods employed in the RGS tradition are still highly relevant.

Intercultural genre analysis

Another fruitful area of genre research in recent years has been intercultural genre analysis. This approach is based on intercultural rhetoric (IR), 'the study of written discourse between and among individuals with different cultural backgrounds' (Connor 2011: 2). IR allows for the analysis of similarities and differences in the way genres are performed across cultures. Example genres to have been analyzed from this perspective are public information messages (Barron 2012), conference abstracts (Samar et al. 2014), research articles (Sheldon 2011), and online platform reviews (Zhu et al. 2019). Some of this work also contrasts L1 and EAL versions of the same genre. Intercultural genre analysis is not without its challenges. For example, national culture does not have sole explanatory power; national cultures are not homogeneous (other cultures interact with them [e.g. professional cultures]); and rhetorical traditions do not belong to single cultures. There is also the issue of the *tertium comparationis* (the common platform of comparison); not all genres have an equivalent in another culture, on the one hand, and genres carrying the same name are not necessarily equivalent in functional terms, on the other (Barron 2012). The very challenge of teasing out these variables, however, can provide both scholars and students with a sense of where variations occur and to what extent they may represent a barrier to intercultural understanding. Certainly, it can provide learners with insights into how and when to accommodate, modify, or resist these differences when communicating interculturally (McIntosh et al. 2017).

Recommendations for practice

Genre analysis has manifest practical applications. Indeed, much of the theory has been developed with practical goals in mind. For example, Swales (1990, 2004) developed his ideas on genre with a view to the teaching of research English to graduate students whose first language was not English. Similarly, Bhatia's (1993, 2004, 2017) goal in developing his theory of genre was to achieve a better understanding of professional practice with a view to improved training. Beyond academic and professional contexts, however, genre analysis is a useful tool for social analysis in many domains. Fairclough (1995), for example, has shown how genre analysis can

be used to analyze media genres from a critical perspective. Auken and Sunesen (2021) is a collection of papers showing how genre analysis can contribute to the climate debate by 'understanding, developing, and perhaps even changing the debate' (p. 1). Gaudet 2021 has a critical RGS perspective on health awareness, with implications for practice. Nevertheless, the greatest amount of literature on the practical application of genre analysis is in the academic field, especially in second and foreign language contexts in the teaching of writing, referred to as genre-based (writing) instruction.

Flowerdew provides the following justification for the application of genre to language pedagogy:

> Given the distinctive features of individual genres, they are amenable to pedagogic exploitation; systematic descriptions of the distinguishing features of genres, of how they are produced and how they are received provide targets for learning. In first language contexts, some genres are acquired naturally in the home, but many have to be taught through the formal education system. In second language contexts, especially those where there is little or no exposure to first language contexts, all genres may need to be taught to a greater or lesser extent.

And Hyland (2004: 10–11) lists the following advantages of the approach:

> **Explicit**. Makes clear what is to be learned to facilitate the acquisition of writing skills
> **Systematic**. Provides a coherent framework for focusing on both language and contexts
> **Needs-based**. Ensures that course objectives and content are derived from student needs
> **Supportive**. Gives teachers a central role in scaffolding student learning and creativity
> **Empowering**. Provides access to the patterns and possibilities of variation in valued texts
> **Critical**. Provides the resources for students to understand and challenge valued discourses

Consciousness-raising and text deconstruction/reconstruction were referred to earlier as a preferred way of developing genre awareness. This approach is more in terms of knowledge of textual conventions. A broader conception of genre awareness would emphasize the 'empowering' aspect of the procedure in the list from Hyland and would correspond more to an RGS conception, as 'a critical consciousness of both rhetorical purposes and ideological effects of generic forms' (Devitt 2004: 189), although there is no reason that an ESP approach could not also take a more critical approach such as this. Indeed, Bhatia (2017), one of the pioneers of the ESP approach, has more recently argued for a critical genre analysis – critical meant not in the sense of social critique as in critical discourse studies (Flowerdew and Richardson 2017) but in terms of a very thick description (Geertz 1973) of the professional and cultural context of a genre.

Future directions

There is an ongoing need to continue to examine the textual and contextual structure and function of the myriad genres currently extant and those newly innovated in society and their uptake (how they relate to each other). Similarly, there is a need to examine the relations between genre stereotypes and the performance of genres by individual agents – how genres may be manipulated according to individual purposes. As referred to earlier, the different genre traditions go about these goals in different ways. There is evidence of a coming together of the ESP and RGT traditions, with ESP emphasizing context more, in particular (e.g. Bhatia

2017), although the Sydney School remains true to its roots in SFL as a linguistic and not an interdisciplinary theory:

> With respect to linguistic models, its perspective is social rather than cognitive, its analysis of social contexts is social semiotic rather than ethnographic commentary, and it is designed along multiple dimensions as a stratified, metafunctional, multimodal theory of text in social context rather than eclectic. In relation to other fields, it is integrated in a functional theory of language rather than interdisciplinary . . .
>
> *(Rose 2012: 209)*

In terms of genre pedagogy, new teaching approaches, methods, and techniques are continually being developed. These will need to be further enhanced with the increasing emphasis on multimodal and digital genres. It is worth noting, at the same time, that there have been calls for more research on the application of genre analysis vis a vis genre description (Cheng 2019; Swales 2019), although research and practice in genre pedagogy is increasingly popular.

Related topics

corpus linguistics; English for professional communication

Further reading

Bawarshi, A. S. and Reiff, M. J. (2010) *Genre: An Introduction to History, Theory, Research and Pedagogy*, West Lafayette, IN: Parlor Press. (This volume is an overview of the major approaches to genre analysis and its pedagogical applications.)

Bhatia, V. K. (1993) *Analysing Genre: Language Use in Professional Settings*, London: Longman. (This is one of the earliest texts on the ESP approach to genre analysis; it is of particular interest for the steps it sets out for conducting a genre analysis.)

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Rose, D. (2012) 'Genre in the Sydney school', in J. P. Gee and M. Handford (eds.), *The Routledge Handbook of Discourse Analysis*, London: Routledge, pp. 209–225. (This is a succinct account of the Sydney School approach to genre analysis and its application to pedagogy.)

Swales, J. M. (1990) *Genre Analysis. English in Academic and Research Settings*, Cambridge: Cambridge University Press. (This is the seminal text on the ESP approach to genre analysis.)

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Stylistics

Elena Semino

Introduction: stylistics and style

In its broadest sense, stylistics is concerned with the description and interpretation of distinctive linguistic choices and patterns in texts. Style in language is generally defined as the result of patterns of choice at different linguistic levels that may be characteristic of a text, the works of an author, a genre, and so on. The notion of style is thus fundamentally comparative: different styles in language arise from the possibility of speaking or writing in different ways, and the style of any text or group of texts can only be described in contrast with that of a different text or group of texts, or in contrast with dominant patterns in the relevant language as a whole.

This view of style in language as depending on both choice and difference raises two issues. The first issue is whether only some types of linguistic choices are relevant to style, or whether all choices result in stylistic differences. The former view relies on a distinction between 'form' on the one hand and 'meaning' or 'content' on the other so that it is possible to express the same meaning, at least broadly speaking, via different formal choices. Within this view, selecting the noun 'steed' as opposed to 'horse' in a narrative is a stylistic choice, as both nouns can refer to the same equine entity in in a story world. In contrast, selecting 'zebra' as opposed to 'horse' is not a stylistic choice, as the nouns evoke different animals, and involve differences in the world projected by the story rather than its style. In contrast, the opposing view emphasizes that any variation in form has implications for meaning (e.g. 'steed' and 'horse' have different connotations and may evoke different equine images) so that no distinction can be made between choices of content and choice of form. Hence, all linguistic choices have implications for both style and meaning. These different views of the relationship between choice and style are sometimes referred to as, respectively, 'dualism' and 'monism' (see Wales 2001). Leech and Short (1981: 10–40) attempt to resolve this opposition by distinguishing between two notions of style: a broader notion of style as 'linguistic choice in general' and a more restricted notion of style within which '[s]tylistic choice is limited to those aspects of linguistic choice which concern *alternative ways of rendering the same subject matter*' (Leech and Short 1981: 31; italics in original). Even within this more restricted definition, however, stylistic choices are meaningful in that they contribute to the reader's or listener's interpretation of the text.

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The second issue that arises from defining style in terms of choice and difference relates to how difference, or distinctiveness, can be determined. In an early and influential discussion of this issue, Enkvist (1973: 21–26) argued that the style of a text can only be accounted for by comparing the text with a larger group of texts that functions as a contextually relevant 'norm':

> The norm may be chosen from a wide field. One portion of a text may be matched against other portions or the whole of the same text. One text may be compared to other texts. Or the text may be set against an imaginary norm that only exists in a critic's mind.
>
> *(Enkvist 1973: 26)*

Enkvist suggests that the comparison will lead to the identification of 'style markers': '[f]eatures whose densities are significantly different in the text and in the norm' (Enkvist 1973: 25). I will return to the different methods that have been developed in stylistics for identifying what Enkvist calls style markers.

A history of stylistics

While it is difficult to establish clear boundaries for what counts as stylistics, the term is primarily associated with a line of research that can be traced back to the studies of style in language conducted in continental Europe by Bally (1909) and Spitzer (1948) in the first half of the 20th century. The second half of the 20th century saw the rise of an Anglo-American tradition, initially under the influence of Russian and Prague formalism and practical criticism, and subsequently benefitting from theoretical and methodological advances in linguistics more generally. Stylistics is now an international and diverse field of study. This chapter is, however, limited to work published in English since the 1960s.

An initial distinction needs to be made between what have been called 'general stylistics' and 'literary stylistics' (Wales 2001). General stylistics is concerned with the relationship between language and context of use and involves the study of the styles associated with different genres. It is closely related to other areas of linguistics that are concerned with language variation, such as sociolinguistics (e.g. Coupland 2007). Literary stylistics is primarily concerned with the relationship between the language of literary texts and their meanings and effects, broadly conceived.

General stylistics

The terms 'style' and 'stylistics' feature in the titles of two landmark studies which were published in the late 1960s and early 1970s, while linguistics was becoming established as the new 'science of language': Crystal and Davy's (1969) *Investigating English Style* and Enkvist's (1973) *Linguistic Stylistics*. Enkvist's approach to the study of style was briefly mentioned earlier. Crystal and Davy (1969) similarly see the goal of stylistics as the systematic study of how and why language varies depending on the context of use. They outline a method of linguistic analysis involving five 'levels' of language (phonetic/graphetic, phonological/graphological, grammatical, lexical, semantic) and describe extra-linguistic situations in terms of several different 'dimensions of situational constraint' (including, for example, dialect, time, speech vs writing, type of activity, social relations, etc.). This approach is applied to the identification of what Crystal and Davy call 'stylistically significant' or 'stylistically distinctive' features in a range of different types of language use, including informal conversation, newspaper reporting, and the language of religion (see also Leech 1966 for an early study of the language of

advertising). Crystal and Davy (1969: 12–13) also explicitly discuss the issue of 'objectivity' in stylistic analysis, which, as shown in more detail later, has vexed the field since its origins. They suggest that the initial selection of the linguistic features that might be stylistically significant can only be based on the analyst's intuitions, which are 'informed' but inevitably subjective. The subsequent analysis of these features, which involves both classification and explanation, is in contrast described as 'objective', as it is based on the application of relevant theoretical frameworks and on a systematic understanding of patterns of variation in language use.

Since the early 1990s, advances in general stylistics have been enabled by theoretical and methodological developments in linguistics more generally. First, the rise of pragmatics and (critical) discourse analysis has made it possible to explain more systematically why particular patterns of choice are made in particular contexts of use. Carter and Nash (1990) point out the political and ideological implications of style: they argue that writers fashion their texts in order to facilitate particular 'ways of seeing (and believing)' and to suppress others. Hence, the analysis of style requires an understanding of asymmetries in power relations between writers and readers and can reveal the ways in which dominant ideologies are textually constructed, maintained, and reinforced (see also Simpson 1993). Within this tradition, Jeffries (2010), for example, shows how 'oppositional meanings' are contextually created in both literary and non-literary texts to achieve rhetorical goals and perform ideological functions.

Second, the application of the methods of corpus linguistics to text analysis has made it possible to place the selection and description of stylistically significant features on a firmer empirical footing (McIntyre and Walker 2019). For example, a text or corpus can be automatically compared with another text or with a usually larger 'references' corpus in terms of the relative frequencies of words, grammatical categories and semantic fields (cf. Adolphs's [2006] notion of 'inter-textual' electronic analysis). This results in lists of statistically 'overused' linguistic features of a text or corpus (known as 'key' words, parts of speech, or semantic fields) which can be used to identify potential style markers (in Enkvist's sense) in a data-driven fashion. However, the further interpretation and analysis of such key features inevitably relies on the analyst's intuitions and knowledge of the data. In addition, individual texts or corpora can be investigated electronically via concordances (lists of particular expressions in context) and collocations (statistically significant patterns of co-occurrence in the use of words) (cf. Adolphs's [2006] notion of 'intra-textual' electronic analysis). Stubbs (1996), for example, combines an inter-textual and an intra-textual computer-aided approach in order to compare Baden-Powell's last messages to the Boys Scouts and the Girl Guides. He shows the sexist implications of the different uses of 'happy' and 'happiness' in the two texts by analyzing concordances of these two words in both texts and in two larger corpora of English.

Language corpora can also be used to investigate variation across text-types, both synchronically and diachronically. Biber (1988) pioneered the use of multivariate analysis to arrive at a systematic account of the clusters of linguistic features that characterize different modes of speaking and writing in a large corpus of English. Clarke et al. (2021) employ multiple correspondence analysis to study the co-occurrence of keywords in a corpus of UK press articles about Muslims and Islam and discover patterns of contrast among groups of texts that reflect both different discourses (e.g. globalism vs tribalism) and different sub-registers (e.g. news reports vs opinion pieces).

In addition, it is possible to enrich corpora by adding further information, either manually or electronically. This process, known as annotation, enables analysts to carry out computer-aided analyses of textual phenomena that cannot be studied by searching for particular words or groups of words. For example, Semino and Short (2004) annotated a corpus for different categories of speech, writing, and thought presentation (e.g. direct speech, free indirect thought), and then used

the corpus to investigate the forms, functions, and patterning of different modes of presentation in fictional and non-fictional narratives. Steen et al. (2010) annotated for 'metaphor-related words' four sections of the four-million-word BNC Baby Corpus (British National Corpus) that they see as representing different 'registers': fiction, news, academic writing, and conversation. They found differences in frequencies of metaphor-related words that they related to differences in the functions performed by language in different registers. For example, the fact that conversation had the lowest frequencies of metaphors while academic writing had the highest was explained in terms of contrasts between language use that is situation-dependent versus independent and between a focus on non-abstract versus abstract information (Steen et al. 2010: 218).

Literary stylistics

Literary stylistics is concerned more specifically with the relationship between form and meaning in literary texts. In introducing a volume on the linguistic analysis of poetry, prose fiction, and drama, Short (1996) defines stylistic analysis as follows:

> [S]tylistic analysis is a method of linking linguistic form, *via* reader inference, to interpretation in a detailed way and thereby providing as much explicit evidence as possible for and against particular interpretations of texts.
>
> *(Short 1996: 27)*

This approach to stylistic analysis first developed in Britain in the 1960s under the influence of practical criticism, Russian formalism, and the Prague linguistic circle. Practical criticism, which was developed at Cambridge University in the 1930s, advocated close attention to the language and structure of texts, in contrast with a concern for the social, cultural, and historical context that was prevalent in literary criticism more generally (e.g. Richards 1929). The group of scholars known as the Russian formalists operated in Moscow and St Petersburg in the early 20th century and similarly regarded texts as the main object of study. They were particularly concerned with the formal and functional features that distinguish literary from 'non-literary' language. They argued that the function of art generally, and of verbal art in particular, is to deautomatize or defamiliarize our routine perceptions of experience and reality. According to Shklovsky, this is achieved by 'mak[ing] objects "unfamiliar"', 'mak[ing] forms difficult', and 'increas[ing] the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged' (Shklovsky 1965: 12). The Prague linguistic circle was influenced by the Russian formalists, especially via the work of Roman Jakobson, who moved from Moscow to Prague in the 1920s. The members of this group combined the insights of the Russian formalists with greater attention for language. Mukařovský (1964) argued that poetry is characterized by the systematic deviation from the norms of 'standard' language, which foregrounds the language itself and leads to defamiliarizing effects. Jakobson's (1960) multi-functional approach to communication includes what he calls the 'poetic' function, which involves a focus on the text for its own sake and manifests itself in the presence of linguistic patterns, or parallelism.

Jakobson is often credited to have launched the linguistic approach to literature that characterizes literary stylistics by stating that

> a linguist deaf to the poetic function of language and a literary scholar indifferent to linguistic problems and unconversant with linguistic methods are equally flagrant anachronisms.
>
> *(Jakobson 1960: 377)*

The early applications of linguistic analysis to literary texts by Jakobson himself (e.g. Jakobson and Lévi-Strauss 1962) involved painstaking inventories of linguistic choices (phonetic, grammatical and lexical), with no consideration for degrees of salience and interpretative significance. This reflected a deliberate attempt to separate description from evaluation in the linguistic study of literature. In contrast, other linguists strove to connect linguistic description with the interpretative issues that are the traditional concerns of literary criticism. Leech (1969), for example, developed some of the central notions from the formalist tradition into powerful tools for the stylistic analysis of poetry. He suggests that foregrounding effects can be achieved both via deviation (unexpected irregularity) and parallelism (unexpected regularity) and argues that the patterning of foregrounding devices is central to the overall significance of (poetic) texts.

The rise and development of literary stylistics since the 1960s can best be explained with reference to the growth of linguistics generally, as stylisticians have tended to exploit relevant advances in linguistics for the purposes of literary text analysis. As the concerns of linguists broadened from sentential to textual, pragmatic, and discoursal phenomena, stylistic analysis started to be applied not just to poetry but also to prose fiction (e.g. Leech and Short 1981; Fowler 1986) and drama (e.g. Culpeper et al. 1998). In addition, stylistics has been influenced by advances in narratology (notably on the study of plot and point of view) and by some aspects of literary theory (e.g. reader-response criticism). These multiple influences and interactions have led to a proliferation of labels for different branches of stylistics, such as affective stylistics (Fish 1970), pragma-stylistics (Hickey 1989), discourse stylistics (Carter and Simpson 1989), critical stylistics (Weber 1992), feminist stylistics (Mills 1995), cognitive stylistics (Semino and Culpeper 2002), and corpus stylistics (Semino and Short 2004). The rest of this section focuses on a selection of key studies in literary stylistics since the 1960s, which give an overview of the historical development of the field and of its variety.

The rise of Chomsky's generative grammar in the 1960s and 1970s was reflected in a series of studies that described the styles of particular texts or authors in terms of the application of particular sets of syntactic rules or transformations. Thorne (1965), for example, treats each of a series of poems as a sample of a different language, which can be accounted for by constructing a specific grammar. In 21st-century stylistics, however, the influence of the Chomskyan tradition in stylistics is only visible in some influential work on poetic metre, which is treated as a separate module operating independently of phonology and syntax (Fabb and Halle 2008).

Since the 1970s, Halliday's systemic-functional approach to language, and grammar in particular (e.g. Halliday 1978), has had a more long-lasting influence on stylistics. Halliday himself applied his approach to transitivity to a literary text in a seminal analysis of William Golding's *The Inheritors* (Halliday 1971). Halliday showed how different patterns of choices in the system of transitivity are used to contrast the world view of the novel's protagonist, Lok (a member of 'the people' – a group of early humans usually described by the critics as Neanderthal), with that of the members of a more advanced group (referred to as 'the new people' in the novel and usually identified as *Homo sapiens*). The part of the novel that reflects Lok's point of view is characterized by a high frequency of intransitive structures and inanimate entities functioning as grammatical subjects. So, for example, the sentence 'The stick began to grow shorter at both ends' is used to describe Lok's perception of an action that readers are likely to identify as someone drawing a bow. Similarly, Lok's perception of the noise caused by an arrow hitting a tree is conveyed by the following description 'The dead tree by Lok's ear acquired a voice. "Clop!"' These patterns, Halliday concludes, suggest that Lok has a poor understanding of agency and cause-effect relationships. This limited understanding in turn

explains the demise of his group when faced with 'the new people', who appear to have a more sophisticated understanding of the world.

Halliday's model of language is part of the analytical frameworks adopted in some landmark later works in stylistics (e.g. Leech and Short 1981; Fowler 1986/1996). More specifically, Halliday's analysis of *The Inheritors* has inspired further studies of the role of transitivity in conveying unusual world views, or 'mind styles' (Fowler 1977). Both Leech and Short (1981: 202–207) and Fowler (1986: 133–134), for example, discuss the section of William Faulkner's *The Sound and the Fury* that is narrated by Benjy, a cognitively impaired 33-year old man. Both studies point out the lexical and grammatical simplicity of Benjy's narrative, as well as some transitivity patterns that, as in Lok's case, suggest a distinctive understanding of human actions and intentions: a high frequency of intransitive structures and a tendency to use transitive verbs without direct objects (e.g. the verb 'hit' is used intransitively to describe the actions of people who, readers are likely to infer, are engaged in a game of golf).

The analysis of transitivity patterns also plays a central role in those applications of stylistics that are concerned with the relationship between linguistic patterns in literary texts on the one hand and power relations, discrimination, and ideologies on the other. Indeed, Halliday's systemic-functional grammar has also often been adopted within critical discourse analysis, which has influenced and overlaps with some influential work in literary stylistics. Burton (1982) for example, applies an adapted version of Halliday's model of transitivity to an extract from Sylvia Plath's semi-autobiographical novel *The Bell Jar* in which the narrator/protagonist undergoes electro-shock treatment aimed at alleviating her depression. Burton's analysis of the realization of participants and processes in the extract shows how the other two characters in the scene (a female nurse and a male doctor) are consistently presented as in control and as acting on the protagonist or the equipment in the treatment room. In contrast, the protagonist does not act to affect others or her environment but is solely affected by others' actions. Burton argues that Plath's linguistic choices 'disenable' the protagonist and thus result in a representation of the female protagonist as passive and helpless. This representation is consistent with dominant tendencies in the representation of women, both in fiction and elsewhere, which are potentially detrimental to women's self-image. Burton's goal is to provide an example of how, in her view, stylistics both cannot and should not be politically neutral but should contribute to the promotion of human rights, especially in relation to sexism (see also Mills 1995).

The study of fictional interactions, in both prose fiction and drama, began in the 1980s following the rise of pragmatics and conversation analysis. In spite of the differences between real-life conversations and fictional conversations (e.g. see Short 1996: 172–186), stylisticians have shown how the theories and analytical frameworks developed by linguists interested in interaction can explain the ways in which readers or audiences perceive characters and infer 'meanings between the lines' in interpreting fictional interactions. Short (1989a) discusses characterization and the creation of absurdist effects in drama by means of an analytical framework that includes notions, such as speech acts, presupposition, and conversational implicature (see also Black 2006; Culpeper et al. 1998). The notions of 'face', politeness, and impoliteness have also been applied to the analysis of fictional interactions, especially in order to explain the attribution of goals to characters and the perception of their mutual relationships (e.g. Leech 1992; Culpeper 1998). A further development in this area is the study of interactions in fictional television drama (Bednarek 2010) and films, which also require the development of multimodal forms of stylistic analysis (McIntyre 2008).

Literary stylistics in the 21st century: directions and challenges

Two main approaches to stylistics have been particularly productive in the first few years of the 21st century: corpus stylistics and cognitive stylistics. Both approaches have their roots in earlier work in stylistics, but both have gained considerable impetus from developments in, respectively, corpus linguistics and cognitive science.

Corpus stylistics

Quantification, broadly conceived, is relevant to both general and literary stylistics. The claim that the style of a particular text or groups of texts is distinctive in some way ideally involves evidence that some linguistic features are more (or less) frequent in those texts than elsewhere. Similarly, the claim that particular linguistic choices are foregrounded in a text requires evidence that those linguistic choices are indeed deviant or unusual as compared with language use generally. Manual quantification has often been used in stylistics analysis (Leech and Short 1981: 74ff.), and there is a long tradition of statistical approaches to literary style (Milic 1967). Since the end of the 20th century, however, the increasing availability, flexibility, and user-friendliness of language corpora and computer-aided methods has increasingly been exploited in literary (as well as general) stylistics. More specifically, computer-aided methods have been used in order to investigate the language of individual texts and the works of particular authors (McIntyre and Walker 2019).

Louw (1997), for example, investigates the 'semantic prosody' of a particular word (the adverb 'utterly') in the Bank of English corpus in order to account for the use and potential effects of that word in a poem by Philip Larkin. Hoover (1999) uses a corpus of British and American novels in order to carry out a systematic quantitative analysis of the language of Golding's *The Inheritors*, thus building on and extending Halliday's (1971) earlier 'manual' analysis of the novel. Culpeper (2002) employs the automatic analysis of 'key words' in order to investigate the linguistic features that characterize the language of the main characters in Shakespeare's *Romeo and Juliet*. Mahlberg (2013) shows how the automatic retrieval of multi-word sequences, or clusters, can reveal some distinctive aspects of Dickens's style and characterization techniques. McIntyre and Walker (2019: 129–141) use a series of corpus-based analyses to test the validity of a number of claims that have been made by literary critics about Ernest Hemingway's style. By comparing eight of Hemingway's works to two corpora of general English, they find that, for example, Hemingway uses adjectives unusually infrequently, but that the same does not straightforwardly apply to adverbs. Hoover (2002) demonstrates a corpus-based technique for attributing novels to authors by considering the distribution of the most frequent words and word clusters.

It needs to be acknowledged that corpus-based and computer-aided methods have inevitable limitations, both in terms of *what* can be investigated and *how*. Hence, these methods cannot replace the more traditional, intensive approach to stylistic analysis, nor do away with the role of the analyst's intuitions (which are, for example, involved in the interpretation of the output of software tools). Nonetheless, these methods are an invaluable addition to the methodologies available to stylisticians, as they enable scholars to test out empirically their intuitions about texts and to study patterns that could not be realistically investigated manually.

Cognitive stylistics

The second area of study I mentioned earlier, cognitive stylistics, also has its roots in earlier work within literary stylistics. Although stylistic analysis is primarily focused on texts, its concern

for interpretative effects inevitably involves readers. Traditionally, however, stylisticians have used general notions such as inference, but without adopting particular models of cognition or text processing. Between the end of the 20th century and the beginning of the 21st century, some linguistic approaches to literary text analysis began to draw more explicitly and systematically from work in psychology and cognitive science. Cook (1994), for example, exploits and extends schema theory in order to propose a theory of literariness that reformulates the central tenets of the formalist approach to literary language. Semino (1997) adapts Cook's approach in a study of how text worlds are imagined by readers of poetry in their interactions with texts. Culpeper (2001) combines some insights from social psychology with well-established techniques in the stylistic analysis of drama in order to develop a model of characterization in plays. Emmott (1997), Werth (1999), and Gavins (2007) consider both linguistic choices and mental representations in order to account for how readers imagine the worlds of narrative texts. Other cognitively oriented approaches to literature have built on relevance theory (Clark 2014) and some relevant advances in brain science (Sanford and Emmott 2012).

Since the 1990s, a large body of work has been influenced by the growth of cognitive linguistics, including conceptual metaphor theory (Lakoff and Johnson 1980). This work has been subsumed under the labels 'cognitive stylistics' (Semino and Culpeper 2002) or 'cognitive poetics' (Stockwell 2002, 2020). In a series of influential studies, Freeman (1993, 1995) applied conceptual metaphor theory to the analysis of Shakespeare's plays and argued that the dominant source domains in each play account for each text's thematic unity, characterization, and plot development, as well as for the interpretations that have been proposed by critics. Blending theory (Fauconnier and Turner 2002) has also been applied to the analysis of literary texts, in order to account for phenomena as diverse as rhyming patterns (Sweetser 2006) and point of view (Dancygier 2012). Langacker's (2008) cognitive grammar and particularly the notion of 'construal' have proved particularly fruitful in accounting for how linguistic choices lead to a variety of effects in the reading of literature, notably in relation to characters' mind styles (Nuttall 2018). Browse (2018) explicitly revisits Halliday's systemic functional analysis of *The Inheritors* and shows how an approach based on text world theory (Werth 1999; Gavins 2007) and cognitive grammar (Langacker 2008) can account for additional aspects of readers' interpretations, such as the contrast between Lok's and the reader's versions of the world of the novel and the process whereby the reader understands that 'stick' in the extract mentioned earlier actually refers to a bow.

As cognitive stylistic/poetic approaches have grown in influence and sophistication, they have started to involve attempts to connect textual analyses with readers' responses to texts. Stylistics has, in fact, often intersected with an area of study that has come to be known as the empirical study of literature (Zwaan 1993), as stylisticians have tested out the validity of their linguistic analyses via informant-based work. For example, van Peer (1986) and Sanford and Emmott (2012) conducted experiments that investigate the validity of the predictions based on stylistic analyses of foregrounded features in texts, and arrived at more sophisticated accounts of the conditions in which readers notice and respond to those features. In a similar vein, Whiteley (2011), for example, argues for a more nuanced account of a particular aspect of text world theory (psychological projection) by analyzing a reading group discussion of Kazuo Ishiguro's *The Remains of the Day*. I will return to this kind of research in the next section.

Long-standing debates and future directions

The strengthening of the connection between stylistics and the study of 'real' readers may contribute to avoid the repetition of debates between stylisticians and other literary scholars that have reoccurred cyclically since the 1960s (e.g. see Fowler 1971; Fish 1980; Toolan

1996; MacKay 1996; Short et al. 1998). Within such debates, stylisticians have mainly been accused of claiming a degree of objectivity in their work that does not properly apply, both in relation to the selection of linguistic features for analysis and to the interpretative implications of the findings of their analyses. While some mutual stereotyping tends to occur in such debates, it is probably fair to acknowledge that the confident tone of some work in stylistics may be mistaken for the belief that linguistic analysis enables one to arrive at the 'true' or 'best' interpretation of a text. Most stylisticians agree, however, that they do not aim for some general (and indeed suspect) notion of objectivity but rather that their goal is to produce textual analyses that are explicit, rigorous, systematic, and replicable (e.g. Wales 2001: 373; Simpson 2004: 4). Nonetheless, stylisticians fundamentally differ from some of their critics due to their belief that language matters – namely, that the linguistic choices made in texts affect readers' interpretations – so that stylistic analysis can be used to explain how particular interpretations came about. Simpson puts it as follows:

> While linguistic features do not of themselves constitute a text's 'meaning', an account of linguistic features nonetheless serves to ground a stylistic interpretation and to help explain why, for the analyst, certain types of meaning are possible.
>
> *(Simpson 2004: 2)*

As mentioned, corpus-based methods in text analysis can be used to select distinctive linguistic features independently of the analyst's intuitions. Similarly, a greater consideration for real readers' interpretations can make stylistic analysis less vulnerable to the accusation that the analysis is arbitrarily used to prove the validity and superiority of the analyst's own interpretation of a text.

More positively, however, current work in stylistics provides plenty of evidence for the health of the field and reveals considerable potential for important future developments. Apart from the continued growth of corpus stylistics and cognitive stylistics, as well as their interactions (Stockwell and Mahlberg 2015), there is particular promise in several areas: empirical studies, educational applications, and the interactions between stylistics, the study of new media, and the medical humanities.

Empirical studies are increasingly finding novel alternatives to eliciting readers' responses in laboratory conditions and are tackling new and challenging aspects of responses to texts. For example, Fernandez-Quintanilla (2020) and Laffe (2021) look at the sources and manifestation of empathy with characters in data from, respectively, focus groups and reading groups (see papers in *Language and Literature* 18, 3, 2009). Giovanelli (2016) builds on a long tradition of pedagogical applications of stylistics (Widdowson 1975; Short 1989b, Watson and Zyngier 2007) by showing how text world theory can usefully be applied to the teaching of English in secondary schools. Ringrow and Pihlaja (2020) use the term 'media stylistics' to capture a variety of approaches to the linguistic and multimodal analysis of texts from new forms of media discourse, from online reviews to Internet memes. And a growing number of studies shows the insights that can be gained from applying stylistic analysis to fictional and non-fictional narratives that represent, from first-person perspectives, experiences such as autism (Semino 2014), dementia (Harrison 2017), and psychosis (Demjén and Semino 2021), particularly in terms of a greater understanding of lived experience and of public perceptions of lived experience.

Overall, therefore, in the years to come stylistics will increasingly transcend methodological, disciplinary, and genre boundaries to reveal the ways in which meanings arise from the interactions between readers and texts.

Related topics

cognitive linguistics; corpus linguistics; critical discourse analysis; systemic functional linguistics

Further reading

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21
Discourse analysis

Guy Cook

Introduction

Applied linguistics (AL) interest in discourse analysis (DA) originated in an awareness of the inability of formal linguistics to account for how participants in communication achieve meaning. As such, DA has been a major impetus in ending a narrow conception of AL as a subsidiary discipline merely applying insights from linguistics to language-related problems (Widdowson 1984: 21–28) and moving it towards the broader independent enterprise it is today. Although there are many diverse approaches to discourse in AL, there are also common principles and themes. Discourse can be defined as a stretch of language in use, of any length and in any mode, which achieves meaning and coherence for participants. DA is the use and development of theories and methods which elucidate how this happens.

DA is inevitably concerned with not only language but everything which contributes to communication. Consequently, AL DA has espoused and developed a wide range of approaches to language beyond linguistics, including pragmatics, schema theory, conversation analysis, ethnography, semiotics, multimodal analysis, literary theory, rhetoric, genre analysis, and social theory. It has thus encountered many different disciplines and definitions of discourse. One major influence, which changed the direction of DA in AL, has been social theory, especially the ideas of Foucault, for whom discourses (used in the plural) are ways of using language which express institutionalized values and ideology, delimiting and defining what can be said and how: sexist discourse, medical discourse, legal discourse, and so on. Rather than simply adding yet another dimension, this approach fundamentally changed the original AL conception of DA as merely an extension of linguistic analysis. Yet while this Foucauldian tradition emphasizes the key importance of language use in ideology, it has not in practice paid close attention to linguistic detail in the same way as the AL tradition. In AL, DA has often absorbed this Foucauldian tradition and subsequently other social theoretical approaches, such as that of Bourdieu, to supplement rather than replace close linguistic and textual analysis. It has thus merged two traditions, one from linguistics, the other from social and critical theory, using the two in a complementary manner. At its best, the AL DA tradition thus combines the strengths of linguistics and non-linguistic perspectives, making it the most powerful and rigorous tool for the analysis of language in use. Consequently, it has a great deal to offer to social theory on the one hand, and to linguistics on the other.

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With power and breadth, however, comes a problem of scope. AL DA eclectically embraces insights from a variety of traditions to arrive at a rich interpretation of language in use. It is in thus open to criticism for being a 'study of everything' with no distinct identity of its own. The terms 'discourse' and 'discourse analysis' are variously defined and often loosely used. Many approaches to DA proceed down their own paths without showing awareness of others or clarifying whether they see themselves as part of AL or some other discipline. The broadening of scope has thus made it harder to define and describe DA than when it first emerged in the 1970s. There have nevertheless been some later successful structured overviews of DA (Gee 1999; Johnstone 2002; Paltridge 2006; Widdowson 2007; De Fina and Georgakopoulou 2020).

An issue for this chapter is how to distinguish DA from the other approaches to language use discussed elsewhere in this volume. The study of ESP, EAP, institutions, medical communication, the media, and classrooms all involve DA, while conversation analysis, corpus linguistics, critical discourse analysis, linguistic ethnography, multimodal analysis, and stylistics are all among its tools. Each is in its own way concerned with the achievement of meaning in actual communication. Both DA and AL distinguish themselves from formal linguistics by their resolute focus upon attested language use in social contexts, and their lesser concern with invented or decontextualized models of language is an idealized abstraction. How then is DA to be distinguished from AL on the one hand and from the many branches of study which address specific aspects of language use on the other? And how can a summary of DA do more than briefly allude to several other areas of AL, vaguely implying that they, taken together, constitute DA? How can the description of DA here be more than a composite, giving summaries of approaches which are dealt with more fully elsewhere? These are difficult problems for the contemporary discourse analyst – not only within the covers of this *Handbook* but in the study of language in general. They were not perhaps so problematic in the past, for reasons which will become apparent. I shall return to the problem at the end of this chapter, having in the meantime done exactly what I have just cast doubt upon: summarizing a number of different developments as constituent of an overarching DA.

Early AL DA

In the 1950s DA was understood in theoretical structural linguistics as the potential extension of language analysis beyond the level of single sentences to discover distributional principles between sentences as well as within them (Harris 1952). In descriptive linguistics in the Firthian tradition, it was concerned with describing stages of interaction as communicative acts in context (Mitchell 1957). Both enterprises acknowledged the impossibility of accounting for structure above sentence level without reference to non-linguistic factors, although for theoretical linguists this was seen as a reason *not* to include DA in their enquiries (Harris op. cit.). For those linguists who did pursue DA (or the closely related field of text linguistics) elaborate attempts to construct 'text grammars' (e.g. Werlich 1976) in which sentences would combine in accordance with quasi-linguistic rules proved limited in explanatory power. More successful was work on inter-sentential cohesion in a functionalist linguistic paradigm (Halliday and Hasan 1976), which did reveal structures above sentence level in texts. Yet while important and influential in extending the scope of linguistic description, these analyses of textual cohesion could not fully account for coherence – the perceived quality of meaning and unity which characterizes actual linguistic communication – as it is possible for a sentence sequence to be coherent without cohesion or be cohesive without apparent coherence. (*Inflation is high. The minister has resigned*. vs *Charles has a spoon. He drives it*.). More generally however, Halliday's concerns with language function (e.g. 1973) and the use of language as a social semiotic

(e.g. 1978) were key influences from linguistics which helped move DA in AL beyond an interest in merely extending linguistic analysis. Another such influence was Hymes' (1972a) depiction of communicative competence as involving social and psychological factors beyond what is linguistically possible.

In response to theoretical stimuli, the 1970s and 1980s saw a number of major works on DA emerging from an AL perspective (Widdowson 1973, 1979, 1984; Brown and Yule 1983; Stubbs 1983) or useful to it (van Dijk 1977; de Beaugrande and Dressler 1981). In keeping with the dominant concern of AL with language teaching at that time, there were also a number of treatments of DA in relation to language teaching and learning (Widdowson 1979, 1984; Riley 1987; Cook 1989; McCarthy 1991). DA was and remains fundamental to the guiding principle of communicative language teaching and its later developments, such as task-based language teaching – namely, that successful language learning involves much more than acquiring a static formal knowledge of the new language but must also entail an ability to achieve meaning in communication. A good deal of DA has thus emerged from or in conjunction with the investigation of effective language teaching and learning – and I shall refer to this as the language learning approach to DA; its leading figure is H. G. Widdowson.

By the late 1980s then, DA could be readily defined either as an extension of formal linguistics, or a refutation of it, depending on one's point of view. However, as AL has moved away from a conception of itself as an extension of linguistics and acquired a more complex disciplinary identity, encountering other definitions of discourse in the process, the definition of the field as a whole has become problematic. There are many varieties of DA, none of which is in itself coterminous with DA as a whole, yet there is also no 'pure' version of DA, which is not one of these varieties, or an amalgam of several.

Text, context, and discourse

Much early DA work in AL saw text (the linguistic element in communication) as essentially distinct from context (the non-linguistic elements) and discourse as the two in interaction to create meaning. Context itself was further treated as having a series of components (with different approaches to DA tending to emphasise the role of one or another), such as

- the situation or immediate environment of communication;
- the participants and their intentions, knowledge, beliefs, attitudes, affiliations, and feelings, as well as their roles, relations, and status;
- the cultural and ideological norms and assumptions against which a given communication occurs;
- language which precedes or follows that under analysis, sometimes referred to as 'co-text' (Halliday et al. 1964);
- other texts evoked for the participants and affecting their interpretation – sometimes referred to as 'intertext' (Kristeva 1986);
- non-linguistic meaningful communicative behaviour (i.e. paralanguage), such as voice quality, gestures, and facial expressions (in face-to-face spoken interaction), or choice of typeface, font, layout, and so on (in writing);
- the use of other modes of communication accompanying the use of language, such as music and pictures; and
- the physical medium of communication, such as speech, writing, print, telephone, computer.

This binary opposition of text and context, however, and the itemization of contextual components, is problematic. If context and text are separate, then the status of text itself becomes precarious. If text is linguistic forms, temporarily and artificially separated from context for the purposes of analysis, it ceases to have actual existence and is at odds with the aim of DA to deal with the realities of language in use rather than linguistic abstractions. While the idealization of linguistic forms may be a useful abstraction in linguistics, it may be less so for DA, as in actual communication language is inextricably bound other elements in communication. There is no use of language which does not also have a situation, participants, co-text, paralanguage, and so on. More recent DA, sometimes evoking the earlier theories of Bakhtin in its support (e.g. Bakhtin 1986; Vološinov 1988), has thus preferred a less dichotomous view and eschewed consideration of isolated elements, whether linguistic or non-linguistic, preferring instead a more holistic approach which regards discourse as irreducible, rather than as a simple addition of context and text. In this sense, contemporary DA often positions itself in opposition to the tradition of idealizations and binary distinctions (langue vs parole, form vs meaning, competence vs performance) which have characterized linguistics from Saussure to Chomsky.

Early DA did, however, often work with this binary text/context distinction. For the applied linguists of that time, trained as they were in more traditional linguistics, DA was indeed experienced as the addition of a new dimension (context) to their existing object of study (text). Better to understand this new dimension, DA turned to a variety of approaches to communication from outside linguistics. This gave rise to a number of traditions of DA within AL to which we shall now turn.

Pragmatics

Interest in the role of context led initially to the classic texts of pragmatics (Austin 1962; Searle 1969, 1975; Grice 1975) and attention to how speakers are trying to do with their word, and how their intentions are recognized by their interlocutors. Explication of pragmatic principles became and has remained standard fare in introductions to DA, which typically explain the basic tenets of speech act theory, the cooperative principle, and politeness principles. This is despite the fact that early classic pragmatics deals only with brief invented examples without reference to many significant aspects of context.

Despite this limitation, pragmatics was used in DA of real-world extended communication. In a landmark work analyzing the discourse of primary school lessons, Sinclair and Coulthard (1975) used the pragmatic act as a unit of analysis, showing how acts combine to form higher units (which they called moves, exchanges, and transactions) in an attempt to formulate rules analogous to those in structural grammars. The approach, known as the Birmingham school of discourse analysis, provided an impetus to further work (e.g. Coulthard and Montgomery 1981) but remained focused upon language isolated from other communicative modes, working from transcriptions after the event, thus tending to treat discourse as a product rather than a process.

Schema theory

Another approach to context derived from psychology and artificial intelligence were the related notions of schemata (Bartlett 1932) and scripts (Schank and Abelson 1977). These are posited mental constructs of expected sequences of events or combinations of elements which discourse participants use to interpret what is said or written (Cook 1994; Semino 2002; Emmot et al. 2014). Schema theory is a powerful tool in DA as it can help to explain both high level aspects of understanding,

such as coherence, and low-level linguistic phenomena, such as article choice. For example, the sequence *The taxi was late. The driver couldn't find our house*. appears coherent and uses the definite article appropriately because a 'taxi schema' specifies that taxis have drivers and pick people up from houses. However, the sequence *The taxi was late. The sailor couldn't find our house*. appears incoherent and its definite article inappropriate, as taxis are not expected to be driven by sailors. In the binary conception of discourse as text + context, a schema can be classed as context, as it is a kind of knowledge, derived from experience of the world, in whose light each new text is interpreted. The relation of text and schema is, however, dynamic, with schemata being deployed to interpret texts but also being changed by them (Cook op. cit.).

Both pragmatics and schema theory have remained salient in many approaches to DA. But their focus is very much on understanding as a product, explained after the event, rather than a process, making them seem distant from the actual development of discourse as it appears for participants.

Conversation analysis

One powerful influence on DA which did, however, focus on process and participant perspectives rather than product and analytic constructs was conversation analysis (CA) (Liddicoat 2007; Clift 2016; Stokoe 2018). Following seminal work by Garfinkel (1967) and Sacks et al. (1974), CA's primary interest is in the social act (Seedhouse 2004: 3), and it 'is only marginally interested in language as such' (Hutchby and Wooffit 1998: 14). Working from the premise that talk in interaction, including casual conversation, is fundamentally ordered, CA made use of newly available recording technology to transcribe and closely analyze actually occurring conversation, seeking to understand how participants 'make sense of, find their way about in, and act on the circumstances in which they find themselves' (Heritage 1984: 4) and thus to understand the patterns of social life as realized in talk. Its enterprise differs fundamentally from linguistics in that order, patterns, and principles are sought not in the language being used itself nor through the top-down deployment of explanatory theories but in the common-sense conventional ways in which participants themselves orient to and locally manage what is happening. In this sense, CA was a branch of ethnomethodology and is determinedly and uncompromisingly *emic* (taking the participants' perspective) rather than *etic* (taking the outsider's/theorists' perspective). The idea is to establish patterns of behaviour and to attribute significance to everything that happens, whether it follows expectations or departs from them. To give a simple example, one greeting being answered by another is an expected norm (e.g. Speaker A: *Good morning.* Speaker B: *Good morning*.). If there is no such reciprocation from Speaker B, that absence is significant.

Although initially concerned with conversation, later CA work has studied talk in a variety of contexts, such as workplace interaction (e.g. Nevile 2008), classroom interaction (Seedhouse 2004; see Tsui, this volume), and computer-mediated interaction. Yet while it has been an important impetus in the development of DA and is still widely used within it, CA is different in kind from DA, confining itself, in the interests of methodological rigour, to the analysis of the immediate mechanisms of talk, avoiding speculation about the mental states these mechanisms reflect and create or the larger social realities and histories which they both constitute and reflect.

Ethnography, language ecology, linguistic ethnography

Another source of insight for DA has been ethnography (Hammersley and Atkinson 2007). Like CA, it is firmly committed to seeking significance in the details and apparent disorder of everyday communication and understanding participants' own perspectives on the meaning

and dynamics of what is happening. It, too, rejects the idealizations and generalizations of formal linguistics. Its scope, however, is much broader than CA or, indeed, of DA. It does not confine itself to spoken face-to-face interaction as CA does nor to communication involving language as DA does. Yet though broader in scope and method than DA, it has much to offer to it. One particular ethnographic notion from which DA can benefit is that of the irreducibility of experience – that there are aspects of any act of communication that are particular to it and cannot be generalized. Another is the ethnographer's preoccupation with the relationship between researcher and participants and how findings may be skewed by the former's identity and preconceptions. The inevitable subjective involvement of the discourse analyst in anything he/she reads or hears poses a similar problem to that encountered by ethnographers.

Ethnography has, however, been criticized for being too locked into the particular to be able to make significant large-scale generalizations (Hammersley 1992: 85–95). There is, therefore, a potential for two-way interaction in which linguistic and ethnographic analyses contribute to each other as DA. Early attempts to effect such a union can be found in Hymes' ethnography of communication (1972b) and Gumperz's interactional sociolinguistics (1986). An attempt to synthesise the two and to strengthen the power of both is to be found in the linguistic ethnography (LE) movement (Rampton et al. 2004; Copland et al. 2015, see Tusting, this volume). Arguing that close linguistic analysis is always a sound entry point into cultural understanding, linguistic ethnographers draw upon a number of precedent influences, such as new literacy studies (Street 1984; Barton et al. 2000), interactional sociolinguistics (Gumperz 1986), and critical discourse analysis (see the following section), as well as the mainstream AL language learning approach to DA (see the previous section). LE seeks simultaneously to 'tie ethnography down' and 'to open linguistics up' making it highly relevant resource for DA, if not in many ways – and problematically for definitions of both – synonymous with it.

Closely related to linguistic ethnography, though with a difference of emphasis, is language ecology (van Lier 2004; Kramsch and Whiteside 2008). Often applying its insights to the field of language teaching and learning, it seeks to relate language use to its physical and social environment and the affordances this provides, as well as, now, to planetary environmental concerns, where it makes common cause with the new field of ecolinguistics (Fill and Penz 2016; Stibbe 2020). Language ecology sees language as a historically contingent phenomenon negotiated in daily interactions and pays particular attention to the dynamic relation of language and cultural change, historical expansion, displacement (e.g. by migration), continuity, and transformation. A similar approach is taken by Blommaert (2005), who argues for a more sociolinguistically and historically informed DA suited to an analysis of the contemporary globalized contexts.

Semiotics, paralanguage, and multimodality

Despite their very different origins, the approaches described so far have worked with brief invented dialogues or transcripts of recorded actually occurring talk. Reference to communicative channels other than language is sparse. There is some reference to pupils' raised hands in Sinclair and Coulthard 1975; there is laughter and timing built into CA transcription systems; there are notes about significant non-linguistic elements of communication in linguistic ethnography. They are nevertheless all essentially transcript-based methodologies, in which the words are central and other aspects of communication added as optional supplements, despite the fact that such elements are an integral and indispensable aspect of how meaning and coherence are achieved.

To account for how people make sense of language use in real contexts, DA must take stock of much more than the bare words and treat other communicative phenomena as more than

just an occasional explanatory gloss. In talk, a host of paralinguistic phenomena not only carry meaning in parallel to the words (as the term 'paralanguage' suggests) but can be essential to understanding of the words or even contradict them. (An interpersonal claim such as *I am not angry* is unlikely to be believed if the accompanying 'body language' communicates the opposite.) Nor can paralanguage be ignored in DA as it is never absent or insignificant. The notion of language without paralanguage is indeed one of the idealizations of linguistics against which DA defines itself. Every spoken utterance has a volume, speed, pitch, and intonation in addition to its linguistic form, propositional content and pragmatic force, and these paralinguistic elements convey key information about the speaker's identity, attitude, and commitment. This is so even in telephone conversations where participants cannot see each other. When participants can see each other, there are a host of additional paralinguistic visual phenomena, such as gesture, facial expressions, eye movements and contact (or lack of it), and a rich semiotics of such factors as dress, proximity, position, and touch. Discourse analysts have long shown awareness of the need to incorporate such phenomena into their analyses but also of the difficulty of doing so systematically. Paralinguistic phenomena are of their nature graded, irreducible, and often ambiguous, and transcriptions of them necessarily a selection and an interpretation (Ochs 1979; Cook 1995; Norris 2004; Swann 2010). Technology is also a factor here. Early spoken-discourse analysts had only tape recorders, and this accounts in part for their disproportionate devotion to the transcript as the object of analysis, despite the fact that it freezes interaction, making living speech into a written document and excluding most paralanguage from consideration. Computer technology, however, now allows complex on-screen cross-reference between transcripts, sound recordings, and videos, and work relating these elements (e.g. Hosoda 2006; Carter and Adolphs 2008; Rizza 2009; Stokoe 2018) is an expanding and important enterprise in contemporary DA.

Closely related to the increased attention to paralanguage in discourse analysis of talk, therefore, are advances in the analysis of multimodal communication in general and the growing awareness that language cannot for DA purposes be analyzed in isolation from other communicative elements (Kress and van Leeuwen 2001; Norris 2004; Adolphs and Carter 2007; Kress 2010; see van Leeuwen, this *Handbook*, Volume 2). Yet while the complex interactions of language and paralanguage in speech are ancient and universal aspects of human communication (Finnegan 2002), and in this sense the phenomenon is nothing new, the term 'multimodality' is mostly associated with written communication, although work in CA (e.g. Mondada 2019) and on sign languages (e.g. Kusters et al. 2017) now also incorporates analysis of multimodality. Multimodal analysis concerns itself largely with the multiple dimensions of meaning made possible by modern printing, computer, and mobile technologies, paying attention to the significance of the presentation of the written words themselves (Walker 2001) in different fonts, colours, sizes, arrangements, animations, and so on and to the many communicative modes with which they co-occur, such as still and moving pictures, music, diagrams, tables, and so on. Particular attention has been paid to multimodality in the media (e.g. O'Keefe 2006; Talbot 2007), in advertising (Myers 1999; Cook 2001), in educational resources, and in computer-mediated communication (e.g. Herring 2004). The 'mediated discourse analysis' initiated by Scollon (1998, 2001; Scollon and Wong-Scollon 2003) concentrates on the 'sites of engagement', actions, practices, and objects with which language use always occurs.

Multimodal meaning, whether in speech or writing, online or offline, should then be an essential element of any DA, as it plays a major part in human linguistic communication. Yet there is still little agreement as to quite how multimodality can be captured and related to linguistic communication. Multimodal elements in communication, because they are graded rather than discrete signs, cannot be simply reduced to linguistic terms as they were in early semiotics (Barthes 1977).

They signify by being more or less rather than either/or. Eye contact may be constant or instantaneous or anything in-between, and a colour may be brighter or dimmer along a continuum. Two words on the other hand, such as *bat* and *pat*, are distinguished by a binary contrast (de Saussure 1974) – even though in use they may also have graded paralinguistic features such as pitch or volume. It is perhaps, however, precisely the uncertainty, and the sense of things yet to be done and discovered, combined with the self-evident importance of multimodality in contemporary discourse, which makes the field so exciting and the work on it so stimulating.

The analysis of digital discourse

DA, however defined, considers the actuality and totality of human linguistic communication. It follows that DA must respond to any major new phenomenon or shift in the nature of communication. Such a shift has taken place and gathered pace from the 1990s onwards and in many contexts now equals or exceeds the importance and extent of face-to-face and written communication. The scale of this shift is comparable with those effected by the advent of writing and then print but has spread more swiftly.

Scholars have responded energetically, and analysis of digital discourse is currently the most prolific, innovative, and dynamic area of DA. Withstanding the temptation to merely extend existing techniques, as though the new phenomenon differed only superficially by being on a screen rather than a page, scholars have created new concepts, theories, methods, and techniques. The DA of digital communication thus offers more than an exploration of a new medium. While some works address or survey the phenomenon in general (e.g. Jones et al. 2015; Tagg 2015; Georgakopoulou and Spilioti 2016; Bou-France and Garcés-Conejos Blitvich 2019) others address specific areas such as social media (e.g. Georgakopoulou et al. 2020; Seargeant and Tagg 2014), texting (Tagg 2012), emojis (Seargeant 2019), and viral discourse (Jones 2021). Studies not only analyze digital discourse but also use digital resources, which were either not available or not relevant in studies of pre-digital discourse, such as online metrics (Georgakopoulou *et al*. op. cit.) or online data mining to foster alternative posthuman ways of seeing (O'Halloran 2017).

It is a truly exciting development. Nevertheless, while digital communication has replaced older modes of communication in many circumstances, it has by no means done so entirely, especially in face-to-face communication. Humans need and treasure physical co-presence and the many non-verbal channels of communication involved (touch, odour, warmth, spatial arrangement, etc.), especially in close relationships. The fate of writing and print, however, may be more precarious. For the moment – change being rapid and unpredictable – DA needs to integrate insights developed for face-to-face *and* written *and* digital discourse, especially as the three so often occur together. (Imagine, for example, two people in the same room attending a Zoom call together and referring to a printed document while doing so.)

Larger structures

Despite their differences, many of the approaches discussed so far have an important element in common. Though they may aim for and obtain far-reaching conclusions about communication, culture, and society, they take as a starting point a fine-grained analysis of language in use, assembling evidence of what happens in instances of communication, before making generalizations. Other approaches, however, take the opposite approach, beginning with larger structures and working top-down from these – though they may also deploy detailed analysis to validate these posited structures.

Genre analysis

One such approach is genre analysis, which seeks to understand any communicative event as an instance of a genre, defined as 'a class of communicative events which share some set of communicative purposes' (Swales 1990: 58). Examples of genres are academic articles, news bulletins, advertisements, prayers, operas, and menus. Genre analysis seeks, through fine-grained analysis, to identify the conventions which characterise these different genres.

Genre analysis was developed by Swales and colleagues in connection with the teaching of English for Specific Purposes and is thus closely linked to the language learning approach to DA. Another school of genre analysis has drawn upon systemic functional linguistics (Martin 1985), relating it to the Hallidayan notion of register and drawing heavily on Halliday's functional grammar. In both manifestations genre analysis has both an identity of its own and has drawn upon other traditions including CDA, corpus linguistics, multimodal analysis, etc. for the purposes of the micro analysis necessary to discover, categorise and validate posited genres. Here again then we face the problem of disentangling different approaches to discourse analysis, establishing what if anything they have to make them distinct and independent from each other or from DA as a whole.

Critical discourse analysis (CDA)

An extremely influential approach to DA, also beginning with larger concepts and structures, is critical discourse analysis (CDA) (Fairclough 1989; van Dijk 1993; Fairclough and Wodak 1997; see Zotzmann and O'Regan, this *Handbook*, Volume 2). Drawing on the Foucauldian notion of discourses as institutionalized ways of using language, CDA is concerned with ideology, power relations, and social injustices and how these are represented and reproduced through language. Its political allegiances are explicit, and it claims that discourse analysis cannot avoid taking a political stance. Within this overall framework, various approaches have different emphases. They may focus primarily upon discourse practices and ideologies or seek to link discourse and social structures or to situate specific discourses, such as those of racism, within a broader historical perspective. While CDA has attracted widespread support, it has also been subjected to criticism for bias and partiality (Widdowson 1998), lack of rigour and circularity (Stubbs 1998), and inconsistency in its cognitive and linguistic theoretical bases (Stubbs 1998; O'Halloran 2003) or methodology (Hammersley 1997).

Back to detail and forward to generalization: corpus linguistics

As approaches to DA have developed and accumulated and as factors deemed relevant to analysis have multiplied, there has been a tendency to move away from the close attention to linguistic detail which characterized DA's early days. In addition, the desire for thick description has led actual analyses to focus of necessity upon one or a few communicative events at a time. There are frequently attempts to relate specific instances to general trends in language use, but these have tended to be speculative rather than systematic. The advent of corpus analysis, however (see Lin and Adolphs, this volume) has enabled DA partially to redress these shortcomings and to add a quantitative dimension to research. With its power to place any particular instance of language in the context of its use across a wide range of comparable texts or the language as a whole, corpus comparisons have enabled DA to talk with confidence

about the typicality of any text under consideration. Corpus analysis has thus given a major boost to DA (Baker 2006; Partington et al. 2013), with some of the most impressive work being done in corpus stylistics, i.e. in the discourse analysis of literary texts (Stubbs 2002: 123–44, 2005; O'Halloran 2007a, 2007b; see Semino, this volume). This fertile link of DA with stylistics has indeed a long history – and literary stylistics, which links literary language to its effect, can be regarded as a form of DA.

The greater attention to textual features enabled by corpus linguistics and the benefits it has brought to DA should not, however, be taken to mean that a corpus analysis and a DA are the same thing. Corpus linguistics, like other forms of linguistic analysis before it, is an invaluable tool for DA. Yet in its quest for understanding of how participants in communication achieve meaning, DA cannot limit itself to textual analysis alone, any more than it can limit itself to the cultural and psychological context of language use without attention to actual text. In any act of communication there is someone talking, someone they are talking to, and something they say – sender, receiver, and text – and a full DA must describe analyse and relate each corner of this 'triangle of communication' (Cook 2004: 4–5; Widdowson 2004). A good deal of DA has emphasized one corner at the expense of the other two, but the full range of approaches described in this chapter provides a formidable resource for the contemporary discourse analyst, who can select and eclectically combine techniques to gain a rich and nuanced understanding of what happens when human beings communicate through language.

Final word

The question touched upon earlier, however, remains and becomes more acute as the resources available multiply. Does DA still have any identity separate from the many traditions on which it has drawn? While it may be commendable to draw eclectically upon the strengths of many research traditions to gain a rich insight into communication, there is a valid case for saying that there is no longer a single theory or method of analysis which can be clearly labelled as DA. It has become a superordinate term for a wide range of traditions for the analysis of language in use, so general and all-inclusive that it is hardly worth using. Perhaps the term *discourse analysis* has had its day. It is now so built into the fabric of applied linguistics that any analysis of language in use is discourse analysis of some kind.

Related topics

corpus linguistics; critical discourse analysis; linguistic ethnography; multimodality; stylistics digital discourse

Further reading

Blommaert, J. (2005) *Discourse: A Critical Introduction*, Cambridge: Cambridge University Press. (A version of DA suited to the analysis of identity and power relations in contemporary globalized contexts)

Cook, G. (1989) *Discourse*, Oxford: Oxford University Press. (An introduction to the basic principles of early DA and its relevance to language teachers)

Gee, J. P. (1999) *An Introduction to Discourse Analysis: Theory and Method*, London: Routledge. (A view of DA as process and interaction)

Paltridge, B. (2006) *Discourse Analysis: An Introduction*, London: Continuum. (A clear, balanced, and comprehensive introduction to the field)

Widdowson, H. G. (2007) *Discourse Analysis*, Oxford: Oxford University Press. (A brief and accessible overview of key concepts in DA)

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22

Corpus linguistics

Phoebe Lin and Svenja Adolphs

Introduction

Corpus linguistics is the scientific study of principled collections of machine-readable texts, which can be spoken, written, or multimodal. It incorporates a range of methods and practices for compiling and interrogating language corpora so as to reveal patterns underlying real language-in-use. It is often contrasted with Chomskyan linguistics, which emphasizes language competence and often involves invented examples as the basis of its exploration of language.

Corpus (plural *corpora*) is the Latin word for *body*. In corpus linguistics, corpora have been compiled to represent different genres of language, such as general British/American/Australian English alongside other languages, newspapers/magazine articles, academic writing/speech, learner writing/speech, email messages, television shows, online forums, parliamentary discourses, medical consultations, business meetings, and negotiations. Corpora can be compiled of any language. When two or more corpora are created following the same principles and compositional structure (i.e. *sampling frames*), comparisons of the frequencies of lexical, grammatical, and semantic patterns in the corpora can shed light on variations by, for example, language, time period, or gender.

Historical perspectives

The evolution of corpora (1960s–2020s)

The rise of corpus linguistics owes much to the emergence of computers. The first modern corpora, the London-Lund Corpus of Spoken English (LLC) and the Brown Corpus, were launched in the 1960s soon after computers became popular on university campuses. These early corpora were often limited in size to around one-million-words or less. As digital data storage and processing continued to accelerate, the size of the average corpus increased accordingly. Two of the most well-known English corpora developed in the 1980s and 1990s are the Collins and Birmingham University International Language Database (COBUILD) and the British National Corpus (references to the corpora are listed at the end of the chapter). The Collins Corpus is a monitor corpus built initially for supporting lexicography research and the

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development of the famous COBUILD dictionary series. It contains samples of mainly British written language, as well as transcribed speech from interviews, broadcast, and conversation. The size of the corpus stands at 4.5 billion words at the time of writing. The British National Corpus (BNC) is a 100-million-word corpus of modern British English, consisting of 90% written and 10% spoken texts, including newspapers, magazines, novels, speeches, meetings, lectures, and casual conversation. The corpus has been used in a wide variety of studies to represent British English in the 1990s and remains one of the most prominent corpora to date. It has been extended via the spoken BNC 2014 project, which has delivered a much-needed update on language in use since the original corpus was constructed (Love et al. 2017).

There are many other notable corpora, some of which were developed by publishing houses to serve as a resource for authors. Examples include the Cambridge International Corpus (CIC), the Longman Corpus Network, and the Oxford English Corpus. With increased digitalization came the development of mega-size corpora of many billion words, and the corpus sizes noted here at the time of writing are likely to increase exponentially alongside advances in technology. These include the Corpus of Contemporary American English (COCA, one billion words), the OpenSubtitle2016 corpus (English sub-corpus: 2.5 billion words), and the Google Books N-gram corpus (English sub-corpus: 361 billion words). These mega-size corpora have informed, for example, the development of word lists, normative databases, and machine translation.

Corpus compilation has become far easier today because of the various tools available for researchers to retrieve large numbers of texts from online sources, such as open-access journals, newspapers, movie and video subtitles, webpages, and social media (see end of chapter for references to some of these tools). It now takes only minutes, for example, to retrieve millions of words of social media posts. Provided appropriate ethical guidelines are observed, social media content can be a great source for understanding the public's instant reaction and perception of certain topics and events.

New perspectives on language

Language production and reception have long been conceived of as a rule-based system: rules govern the way that words are pieced together to form sentences, so describing the rules has always been a priority of linguistics research. However, with the availability of corpus data, which shows the prevalence of recurrent phrases in our everyday language (Sinclair 1991), a new approach to linguistics emerged which focuses on lexico-grammar. Sinclair (1991) proposed that language production (and reception) is the result of the alternation between the idiom principle and the open-choice principle. He suggested that 'a language user has available to him or her a large number of semi-preconstructed phrases that constitute single choices, even though they might appear to be analysable into segments' (Sinclair 1991: 110). This is the idiom principle. The open-choice principle, on the other hand, sees a text as constituted by a series of slots to be filled by lexis which satisfies certain grammatical constraints. The prevalence of recurrent phrases in corpora of everyday language is evidence that the idiom principle is the default mode in language production and reception (Sinclair 1991).[1] The switch to the open-choice principle occurs only when there is good reason. A famous example from Pawley and Syder (1983) to illustrate this is *Will you marry me?* This expression is the default and most frequently used expression for marriage proposals compared to any of its grammatical counterparts, such as *Shall we get married? Will you be my spouse?*

Corpus research has also renewed our understanding of word sense and relations. Firstly, it has provided evidence to support J. R. Firth's (1957: 11) idea that 'you shall know a word by the company it keeps'. A simple example to illustrate the dynamics of word meanings as

a result of collocation is shown in the concordance of the word 'stand' in the following table, taken from the BNCweb. We know that the basic meaning of the word 'stand' is to rise to or to maintain an upright position. But when 'stand' collocates with other words, it takes on a metaphorical meaning. This kind of new corpus evidence about word sense and relations has fundamentally transformed lexicography and dictionary production today.

up for huge amounts of emotional strain, knowing that their clients	**stand**	to lose more than their liberty. Since almost all those on
, all modes of thought and life. Certainly Lady Lisa might	**stand**	as the embodiment of the old fancy, the symbol of the
, or obeyed it only in so far as he took a	**stand**	against conservative taste. He did not take sides against Abstraction,
any view. Reynolds was a notable conversationalist, well able to	**stand**	up to his friends, who included Samuel Johnson and Edmund Burke
approach, it must be admitted. In Rome a visitor can	**stand**	in front of a Baroque church, but a few minutes later
the progress of this mad love – to which he did not	**stand**	all that close at the time, brother as he was –
to revel in his own discomfiture here, in his desperate last	**stand**	for freedom -he clearly enjoys the sensation of falling in love,
of them were particularly concerned with 'glamour'. What does	**stand**	out is that everyone believes that the profession, its standards and
number of higher clergy in Ulster and many of its lay intellectuals	**stand**	a long way off from protestant – loyalist politics and are in
will do now, he wrote. It must be impossible to	**stand**	up against it, he wrote, impossible to draw breath before

Secondly, corpus research has shed light on the fact that words and phrases can have acquired meanings through frequent usage with words that evoke positive, negative, or neutral connotations. This is the notion of *semantic prosody*, illustrated with the example of 'set in' from Sinclair (1987), who first noted that some words are likely to be surrounded by something positive or negative.[2] The collocates of 'set in' in the subject position, for example, are *rot*, *decay*, *despair*, and *bitterness* – words which represent unpleasant states of affairs. From frequent associations with these negative semantic profiles, 'set in' acquired a negative meaning. Therefore, even when the phrasal verb is later used in conjunction with words that are neutral in the subject position, the otherwise neutral entities are likely to be interpreted as negative.

Critical issues and topics

Corpora and English language teaching

While corpus linguistics has enabled large-scale descriptions of real language evidence, its real impact lies in the enhancement of applications based on those descriptions. A particularly important application of corpus linguistics can be found in the area of English language teaching, where corpus research findings have led to real innovations in materials design and classroom practice. There are two main directions in which corpora have benefited language teaching and learning: first, corpus-based insights have been incorporated into language

syllabuses, teaching materials and dictionaries; second, teachers and learners can now examine language patterns in a corpus as part of their learning activities in and outside the classroom.

The impact of corpus linguistics on syllabus and teaching materials development is probably most prominent in the area of vocabulary teaching. The availability of corpora has enabled vocabulary researchers to gain insights into how many words there are in English, how many words need to be known in order to accomplish different tasks (including reading newspapers, watching movies, conducting conversations), and which words may be prioritized in teaching because of their frequency of occurrence in everyday communication. Nation (2012), for example, developed a list of 24,000 English word families in 24 bands (e.g. 1k, 2k, 3k . . .) based on their frequencies in the British National Corpus and the Corpus of Contemporary American English. Using an earlier version of this list (i.e. Nation 2006), researchers established that knowledge of 6,000 word families plus proper nouns covers 98% of the words that appear in spoken communication (Adolphs and Schmitt 2003) and knowledge of 8,000 word families plus proper nouns should be sufficient for reading newspapers (Nation 2006). Informed by these corpus-derived figures, language learners and teachers can now set accurate vocabulary learning and teaching targets as part of the English language curriculum. Recently, many new domain-specific corpus-driven word lists and phrase lists have also been launched. These include the New General Service List with 2,494 lemmas (Brezina and Gablasova 2015), the New Academic Vocabulary List with 3,000 lemmas (Gardner and Davies 2014), the Academic Collocation List with 2,468 items (Ackermann and Chen 2013), and the Academic English Collocation List with 9,049 items (Lei and Liu 2018). These lists are instrumental in the teaching of academic writing and general English.

In terms of bringing corpora to frontline teachers and learners, substantial progress has been made in the past decade. In addition to providing practical suggestions on the various ways in which corpus research can be introduced into the language classroom to enrich the language learning experience (O'Keeffe et al. 2007; Reppen 2010; Ivor 2015; Friginal 2018), researchers have designed new corpus tools with simplified interfaces for learners of all proficiency levels (see Lin 2024 for a review). Examples of such tools include Sketch Engine for Language Learning, Just the Word, and Linguee. These tools present English usage information in such a clear and simplified manner that they can be used independently by learners for self-directed study or classroom-based learning.

New sources of corpus data

Early corpora often comprised newspapers, magazines, journals, and novels – texts written mainly for learned readers and readily available for collection. Spoken corpora, on the other hand, often have radio or television programmes, public speeches and lectures, and business meetings and transactions as common sources. Traditionally, texts which are less scripted in nature were rarely included in corpora because they were more difficult to collect, and because of the significant ethical concerns over collecting and sharing everyday discourses. The growth of social media data in particular has opened up new avenues in corpus linguistics. Not only are there abundant sources of less scripted language samples (e.g. tweets, forums), but the source of each text (including its date, time, author nickname, location, URL, replies, number of likes, retweets) is also tagged such that a corpus based on these texts can be used to answer very specific research questions about, for example, how language use varies in specific communicative contexts or how a discourse surrounding an event develops and spreads over time. The fact that many online videos are captioned also means that key processes in spoken corpus compilation, such as transcription and audio-text stream alignment, can be completed more efficiently at a relatively low cost. These opportunities can be creatively exploited

for generating insights or to develop new language learning applications (see 'Current contributions and research'). However, these types of corpora are not without their own issues: automatic captioning is often incorrect and needs to be edited; there are important issues of copyright to consider and the ethics of using personal language data (e.g. tweets) even where they are publicly accessible for research purposes.

Current contributions and research

Identifying and describing patterns in real language-in-use has been one of the main contributions of corpus linguistics from the beginning. Studies have used corpora to investigate patterns of and interfaces between words, part-of-speech, grammatical structures, pragmatic markers, discourse structure, and there has been a move towards corpus-based analyses of multimodal features, such as prosody and gestures.

Word lists, phrase lists, and statistics

One of the affordances of corpora is the unprecedented access to lexical frequency information – that is, we now know how often each word and phrase occurs in everyday language in a given corpus. Such frequency information has been invaluable because it has enabled the development of lexical syllabuses as well as all types of language learning resources including word lists, phrase lists, graded readers, and educational videos. While many new corpus-derived word lists and phrase lists have become available (see 'Resources'), recent studies focus on increasing both the coverage and the robustness of the lists by incorporating multiple statistics, such as expected frequency, range, and dispersion (for example, see Gardner and Davies 2014), in addition to simple frequency counts, in the extraction algorithm. In terms of coverage, technical word lists for English-for-specific-purposes (ESP) disciplines are being built. Phrase lists are technically more challenging to construct than word lists because of their structural (e.g. *pull his/her leg*, *my leg was pulled*) and compositional (e.g. *as far as ___ is/am/are/was concerned*) variability, as well as the difficulty of automatic differentiation between the metaphorical and literal use of some phrases (e.g. *put your foot down*, *keep your head down*) in context. To successfully capture and extract phrases despite their structural and compositional variability requires multi-billion-word mega-corpora (e.g. Google Books N-gram corpus, COCA, OpenSubtitle2016) and/or innovative phrase extraction methods (e.g. Concgram). The longest phrase lists to-date are Lei and Liu (2018) with 9,100 academic collocations and Lin (2022) with over 40,000 formulaic expressions.

Language change, variation, and differences

To track language change and variations, researchers build monitor corpora – corpora to which new texts are added at regular time intervals so that the size and period of a given corpus increases over time. Examples include the Bank of English (1993–, 4.5 billion words from printed publications and transcribed speech) and COCA (1990–, one billion words, with 25+ million words added each year from online sources). Another approach to investigating language change and variations is by building new corpora based on particular sampling frames. Classic examples are the Brown Corpus, the Lancaster-Oslo-Bergen (LOB) Corpus, the Freiberg LOB Corpus, the Freiburg-Brown Corpus, the British English 2006 Corpus, the Lancaster Corpus of Mandarin Chinese (LCMC), the Kolhapur Corpus, the Wellington Corpus of Written New Zealand English (WWC), and the Australian Corpus of English, all of which were built based on the original Brown Corpus sampling frame – 500 texts of around 2,000 words

each, distributed across 15 text categories. As mentioned, a recent noteworthy corpus compilation project is the British National Corpus 2014 (BNC2014) project, which, as its name suggests, is based upon the sampling frame of and comparable with the 100-million-word British National Corpus (BNC).

Programming and corpus linguistics

Increasingly, researchers are authoring their own command prompts to import/crawl, annotate, analyze, and compare texts using programming languages, such as R or Python. Through running R packages (e.g. stringR, tidytext, cleanNLP, qdap, tm, koRpus, lexicon, snowballC, RWeka, Rvest) and Python libraries (e.g. NLTK, SpacCy, TextBlob, Stanford CoreNLP, Vocabulary), this approach offers many more annotation and analytical capabilities than the traditional approach where analyses are conducted using concordancing software programs which provide easy-to-use graphical user interfaces (GUIs). Other benefits of the programming approach include the unique ability to handle mega-corpora; access to and integrated use of the latest advanced annotation and analytical resources, such as sentiment lexicons, names lexicon, stop-word lists, spell-checkers, POS taggers, and dependency parsers free of charge; better file management; and the substantial reduction of errors (e.g. loading wrong files, copying and pasting errors). However, this approach does require a certain level of programming skills and training, so it is less accessible.

While ethical considerations need to be taken into account, the automatic crawling and analysis of tweets for the purpose of corpus analysis is a notable example of a monitor corpus approach (see, for instance, an interesting project which tracks, in real time, public opinions about COVID-19 vaccines on Twitter: http://ailab.uniud.it/covid-vaccines/). Another example is IdiomsTube (Lin 2022), a personalized web-based app which guides the choice and viewing of YouTube videos for independent vocabulary learning. The app effectively uses YouTube as a time-aligned multimodal corpus, analyses the lexical distribution of video captions to identify noteworthy words and phrases, and automatically generates vocabulary practice exercises by concordancing YouTube as a multimodal corpus. As these examples show, the possibilities for quantitative corpus linguistic innovations are numerous.

Concordancing in and outside the classroom

While the examination of frequency tables and concordances continues to inform the development of ELT materials and dictionaries, attention has turned recently to how to facilitate learners' use of concordancing in and outside the language classroom. Many monographs and edited volumes (e.g. Campoy et al. 2010; Reppen 2010; Ivor 2015; Lenko-Szymanska et al. 2015; Friginal 2018; Crosthwaite 2020; Karpenko-Seccombe 2021; Pérez-Paredes and Mark 2021) have been published recently that show how concordancing activities can be effective at enhancing learners' (academic) writing and speaking skills. Learners can be taught to infer lexical meaning and observe patterns in pragmatics, professional discourse, world Englishes, vocabulary, grammar, and translation (see Routledge's Corpus Linguistics Guides series).

Main research methods

The robustness of a corpus linguistic study depends on multiple factors, one of which is the quality of the corpus. When choosing or compiling a corpus, documentation should be available providing information about the name, size, design, and purpose of the corpus, as well

as the type of language that it aims to represent. While a corpus is only a small snapshot of language and is usually only representative of the texts it contains, in order to demonstrate the balance of texts, details about what and why certain texts have been included (or excluded) must be stated along with the objective criteria that informed the proportion of each type of texts in the corpus. Metadata (e.g. publication name, article title and year, speaker background, speech context) should also be available so that words can be traceable to their sources for further discourse analysis as required. The corpus may consist of plain texts with layers of part-of-speech, phonological, semantic, sentiment, or other types of annotations. Multimodal corpora are also increasingly common. These consist of transcribed speech that is time-aligned with audio and/or visual streams (Adolphs and Carter 2013).

While new methods and techniques in corpus linguistics emerge all the time, four basic types of analyses and outputs prevail, including frequency lists, keyword in context (KWIC) concordances, collocation analysis, and keyness analysis, all of which can be generated by using existing desktop or online corpus linguistic software such as AntConc, SketchEngine, and Wmatrix, to name a few.

Frequency lists typically involve generating a list of the most frequent items (e.g. words, lemmas, phrases, nouns, verbs, adjectives, collocates) in a corpus. The list can be tabulated showing the raw or standardized frequencies of the items (as shown in Table 22.1) or presented graphically in the form of a word cloud, in which the font size of an item is directly proportional to its frequency in the corpus (see Figure 22.1 for a sample word cloud made up of words used in this chapter).[3] The frequency list method provides a bird's eye view of the main items in a corpus. Thus, it often is the first step of corpus data analysis. Table 22.1 shows the ten most frequent items in the spoken corpus Cambridge and Nottingham Corpus of Discourse in English (CANCODE) and in the written component of the British National Corpus. The comparison of the two lists highlights some of the key differences between the two modes of discourse. While the two lists contain mainly grammatical items, which is expected in terms of the general distribution of different items in the English language, the CANCODE list includes the personal pronouns 'I' and 'you', which shows the interactive nature of spoken discourse, and the vocalization 'Yeah', which reflects the pervasive occurrence of listener response tokens in conversation (O'Keeffe and Adolphs 2008).

Concordancing involves juxtaposing and exploring all occurrences of a search term (called the *node*) in their original sentences/utterances in a corpus. This process helps to

Table 22.1 Ten most frequent items in the BNC (written) and CANCODE (spoken)

Frequency rank	*BNC (written)*	*CANCODE (spoken)*
1	The	The
2	Of	I
3	And	And
4	A	You
5	In	It
6	To	To
7	Is	A
8	Was	Yeah
9	It	That
10	For	Of

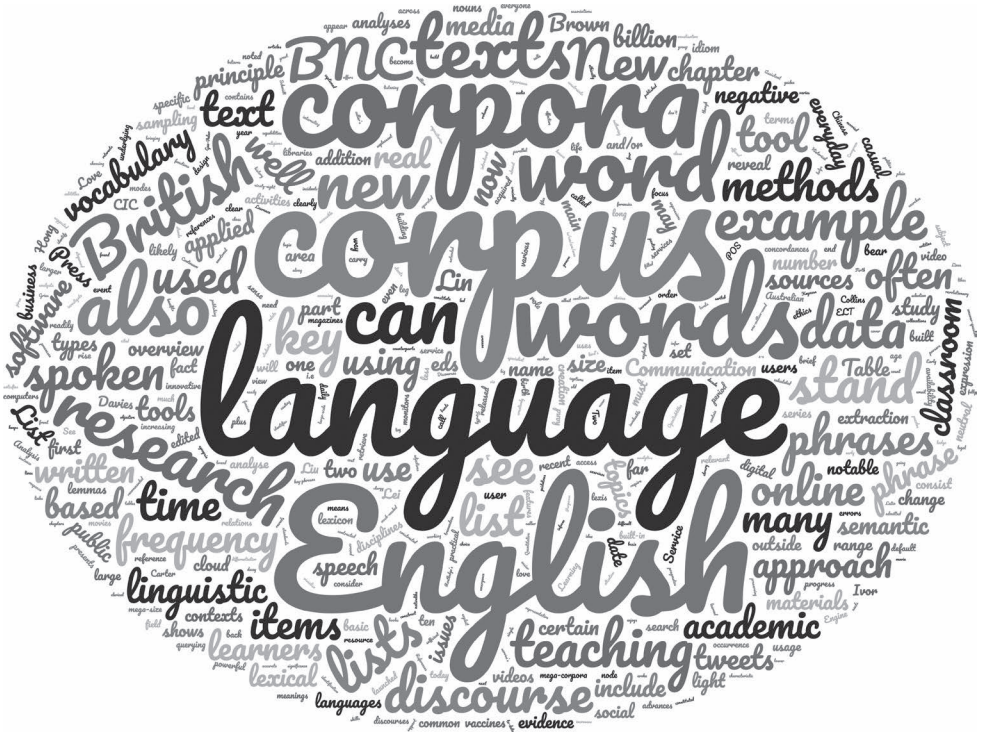


Figure 22.1 A word cloud analysis of this chapter

Your query "see" returned 20,297 matches in 1,229 different texts (in 11,422,617 words [1,251 texts]; frequency: 1,776.913 instances per million words), ordered randomly 0.038 seconds ~ retrieved from cache

|< << >> >| Show Page: 1 Line view Show in corpus order Choose action...

No	Text	Solution 1 to 50 Page 1 / 406		
19	SH2P 56	'd be a dialect though would n't it ? **S0228:** yeah no I	see	I know what you mean **S0192:** I 'm gon na say you do
20	SKXA 66	down the curb (.) so there 's nothing oh shit I ca n't	see	what 's going in the bus lane oh my god **S0619:** there 's
21	SY2Z 618	so cute **S0202:** not not slippers **UNKFEMALE**[???]: no not slippers **S0202:** can I can I	see	your hamster ? **S0219:** do you want to come and see him ?
22	S33B 280	than that eh probably about I suppose we do quite well we	see	her about three three or four times a year I suppose **S0018:** aww
23	SB7R 794	quite **S0517:** desolate and bleak **S0525:** yeah yeah **S0517: >>**and and horrid --ANONnameM wanted to	see	it I was n't so keen **S0525:** I think er **S0517: >>**we went **S0525:** --A
24	SFRX 123	straight past you guys and gone in the door **S0144:** I did n't	see	him yeah maybe he went in the back door **S0024:** so I was
25	S2B5 496	**S0024:** yeah (.) so is he alright though ? When are we going to	see	him ? **S0144: >>**erm yeah but he 's doing alright but then I
26	SRL9 1761	's there knitted pod but you **S0590: >>**yeah **S0589: >>**do n't really get to	see	it and that 's not the hear- oh that is the Heart
27	SB6S 959	--UNCLEARWORD **S0618:** so **S0619:** do n't --UNCLEARWORD wash **S0618:** so female today yeah we 'll	see	about next week **S0618:** ah dear it does seem a little bit pointless
28	SGWU 1850	play out er on the heath then and er we did occasionally	see	an adder there but they 're so so they 're so shy
29	SXK2 431	(.) you do know that do n't you ? **S0572:** --UNCLEARWORD **S0570: >>**did you	see	our photos ? **S0517:** well he was here today and he showed me
30	SRRQ 869	so she 's back to his house opposite the daughter you	see	**S0517: >>**right **S0558:** she 's obviously stopping at the daughter 's s
31	SVXP 473	families really afford to drive down from let 's say Manchester to	see	them and what ? stay in a hotel nearby ? there are
32	SHHG 274	know why they 're that way from a positive perspective I can	see	where the publishers are coming from and it 's like **S0439:** yeah **S04**

Figure 22.2 A KWIC concordance of the word 'see' using CQPweb[4]

foreground patterns of the use of an item, which can be a word, a lemma, a phrase or a particular part of speech, and engages the analyst with relevant sentences/utterances in the corpus data. Figure 22.2 presents a key-word-in-context (KWIC) concordance of the node 'see' using the CQPweb. An examination of the concordance lines reveals multiple senses of the word, such as 'to visualize', 'to understand', and 'to visit', as part of the expression 'I see'. Users can specify the number of words to the left and to the right

of the search word (often called the 'span' or 'window') that are displayed as part of the output. It is also possible to see how the word is used in the original paragraphs. If a corpus is tagged for part-of-speech (POS), users may also perform a concordance search based on word class or grammatical structure. These features make concordancing a powerful tool for both research and applied contexts.

Collocations are words that frequently co-occur (e.g. 'question-answer', 'strong-coffee'). In corpus linguistics, collocation analysis involves the extraction of the collocates in a corpus based on metrics such as mutual information (MI), t-score and logDice. These metrics are normally included in current corpus software programs and are automatically calculated. In addition to showing the usage of a word, collocation analysis has also been used to reveal social perceptions. The analysis of collocates has been widely applied to reveal how genders, religions, countries, and cultures are represented in different contexts, such as media discourses or children's books.

Keyness analysis is a method for identifying items that are characteristic of a corpus. It uses log-likelihood as a metric for retrieving a list of keywords, which are words that occur either with a significantly higher frequency (positive keywords) or with a significantly lower frequency (negative keywords) in a text or collection of texts, when they are compared to a larger, comparable reference corpus (Scott 1997). In addition to keywords, a list of key parts of speech, key semantic domains, and key phrases may also be generated. Table 22.2 is a list of key phrases from the Nottingham Health Communication Corpus, which consists of NHS Direct phone calls, the telephone advice service operated by the UK National Health Service. The list is generated by using the five-million-word CANCODE, a corpus of casual conversation of British English as the reference corpus (see Adolphs et al. 2004; Adolphs 2006). At the top of the table are phrases that typically mark the beginning of telephone interactions with NHS Direct. Unlike casual conversation, NHS Direct interactions are highly transactional, with the phone operator frequently requesting personal information, such as the caller's date of birth and location. The positive key phrases, such as 'just bear with', 'call you back', and 'bear with me', illustrate the service's emphasis on interaction with the caller, often working to a specific protocol for the telephone call. The professional nature of these encounters is also evidenced by the fact that 'I don't know', a common hedge and politeness marker in casual conversation, presents as the most significant negative key phrase in the analysis.

Table 22.2 The ten most significant positive key sequences when comparing the Health Communication Corpus with CANCODE (ordered by significance)

1.	N H S Direct
2.	N H S
3.	Just bear with
4.	Call you back
5.	Bear with me
6.	Date of birth
7.	Your date of
8.	You're calling from
9.	Manage their services
10.	However anybody with

Recommendations for practice

We have already discussed the implications of corpus-based research for language teaching and learning. While much of the work so far in this area has focused on English language teaching and learning, corpora in other languages, as well as aligned multilingual corpora (commonly known as parallel corpora), are increasingly available and are used for similar purposes of language description and application.

Corpus linguistics also provides new approaches and insights for other applied contexts, such as the development of marketing materials, public health communication, business communication, service improvement, and staff training. As online reviews and online forums (including health, community, and special interest group forums) are increasingly important to companies and end users, researchers have also started to exploit these sources to improve the operation of organizations, public services, and businesses. In fact, many innovative specialist corpora (e.g. tweets on certain topics, speeches by famous people, crowd-funding proposals, YouTube comments, government documents) have been compiled and released on online data repositories. As already mentioned, it is important to consider the ethics of accessing and analyzing personal language data that has been put in the public domain for a different purpose. New protocols are being developed on how to carry out ethically responsible corpus research and new technology is being developed to carry out privacy-preserving searches of language data (Carter et al. 2016). As corpus linguistic approaches are becoming more widely used across all academic disciplines and increasingly by organizations outside of academia, we need to focus our efforts on developing agreed protocols and mechanisms for responsible innovation in this fast-moving field of research.

Future directions

In this chapter, we have provided a brief overview of some of the key methods and current issues in corpus linguistics. This has included an overview of different types of corpora, as well as an introduction to analytical methods. Key issues that have been highlighted in this chapter relate to the use of corpus linguistics in phraseology research, English language teaching, and the use of online discourse for corpus-based exploration. As a discipline, corpus linguistics is gathering pace with the development of ever larger datasets and with an increasingly sophisticated suite of tools that can be used to analyse data and to represent the outputs. One of the main challenges for the future will be to fully explore the implications of these advances not only for language description in its own right but also crucially for other disciplines, and the impact that this work may have in applied contexts.

Related topics

critical discourse analysis; discourse; English for academic purposes; ESP and business communication; language learning and language education; lexicography; lexis; medical communication; SLA; technology and language learning; the media; translation and interpreting; world Englishes

Notes

1 Erman and Warren (2000) estimated that recurrent phrases account for, respectively, 58.6% and 52.3% of everyday speech and writing.

2 A definition of *semantic prosody* from Baker, Hardie and McEnery (2006: 145): ‘A term popularised by Louw (1993) and also used by Sinclair (1996), referring to the idea that words collocate in language

use with specific semantic groups as well as with individual words. For example, the word *hair* may collocate with semantic groups such as length (*long, short*) and colour (*red, blonde, black*). Examination of concordances generally helps to reveal the existence of semantic prosodies.'

3 Standardized frequencies are obtained by dividing the raw frequencies by the size of the corpus. The outcome is usually reported in occurrences per million words.

4 Corpus Query Processor (CQP) web by Lancaster University: https://cqpweb.lancs.ac.uk/

Further reading

Baker, P., Hardie, A. and McEnery, A. (2006) *A Glossary of Corpus Linguistics*, Edinburgh: Edinburgh University Press. (This book provides a comprehensive overview of key concepts and relevant references in corpus linguistics.)

Gries, S. T. (2017) *Quantitative Corpus Linguistics with R: A Practical Introduction*, 2nd ed., London: Routledge. (This is a beginner's guide to corpus and text analysis using the programming language R. It is recommended for users who have some basic knowledge about corpus linguistic methods and are interested in going beyond the functions currently offered by corpus software tools on the market.)

Jockers, M. L. (2014) *Text Analysis with R for Students of Literature*, Cham: Springer. (This is the advanced users' guide to corpus and text analysis using R and R packages.)

O'Keeffe, A. and McCarthy, M. (eds.) (2022) *The Routledge Handbook of Corpus Linguistics*, 2nd ed., London: Routledge. (This edited volume provides a comprehensive overview of the field. Together, the 45 chapters cover a wide range of topics, including the history, theory and practice, and applications of corpus linguistics for language teaching, translation studies, sociolinguistics and media studies.)

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Resources mentioned in the chapter

Language corpora

AMI Meeting Corpus: https://groups.inf.ed.ac.uk/ami/corpus/
Australian Corpus of English: http://korpus.uib.no/icame/manuals/ACE/INDEX.HTM
British National Corpus (BNC): www.natcorp.ox.ac.uk
British National Corpus 2014 (BNC2014): http://corpora.lancs.ac.uk/bnc2014/
Brown Corpus, British English 2006 Corpus, Lancaster-Oslo-Bergen (LOB) Corpus, London Lund Corpus of Spoken English (LLC), Freiberg Lancaster-Oslo-Bergen (FLOB) Corpus, the Freiburg-Brown (Frown) Corpus: https://clarino.uib.no/korpuskel/corpus-list
Cambridge and Nottingham Corpus of Discourses in English (CANCODE, now a constituent of the CIC)
See McCarthy (1998)
Cambridge International Corpus (CIC): www.cambridge.org/elt/corpus
The Collins Corpus: https://blog.collinsdictionary.com/the-history-of-cobuild/
Corpus of Contemporary American English (COCA): www.english-corpora.org/coca
Google Books N-gram corpus: http://storage.googleapis.com/books/ngrams/books/datasetsv2.html/
Health Communication Corpus
See Adolphs et al. (2004)
Hong Kong Engineering Corpus: http://rcpce.engl.polyu.edu.hk/
Open Parallel Corpus (OPUS), collection of translated texts from the web: https://opus.nlpl.eu/

Kaggle, a repository of (language) corpora: www.kaggle.com/datasets
Kolhapur Corpus: http://korpus.uib.no/icame/manuals/KOLHAPUR/INDEX.HTM
Lancaster Corpus of Mandarin Chinese (LCMC): www.lancaster.ac.uk/fass/projects/corpus/LCMC
Longman Corpus Network: www.pearsonlongman.com/dictionaries/corpus/index.html
OpenSubtitles2016 corpus: http://opus.nlpl.eu/OpenSubtitles2016.php
Oxford English Corpus: www.askoxford.com/oec
Teenage Health Freak project: Health Communication and the Internet: www.nottingham.ac.uk/research/groups/cral/projects/thf/thfindex.aspx
Wellington Corpus of Written New Zealand English (WWC): www.wgtn.ac.nz/lals/resources/corpora-default

Corpus tools/interfaces

AntConc, an all-purpose text analysis tool: www.laurenceanthony.net/software/antconc
AntCorGen, an academic corpus creation tool: www.laurenceanthony.net/software/antcorgen
BNCweb, an interface for querying the BNC: http://corpora.lancs.ac.uk/BNCweb/home.html
ConcGram, a phrase extraction tool: www.benjamins.com/jbp/series/CLS/1/manual.pdf
English-Corpora.org, a web-based interface for querying English corpora of, for example, online newspapers, television programmes, movies, parliamentary discourse, Wikipedia pages, blogs, and legal texts: www.english-corpora.org
Leximancer, a tool that automatically identifies topics in texts: www.leximancer.com
Laurence Anthony's corpus software programs www.laurenceanthony.net/software.html
SketchEngine, a powerful corpus creation, annotation, and analysis tool that has 530+ built-in corpora in 95 languages: www.sketchengine.eu
Voyant Tools for web-based text analysis: https://voyant-tools.org/
Wmatrix, a web-based corpus analysis tool with built-in part-of-speech and semantic tagging: http://ucrel.lancs.ac.uk/wmatrix/
Wordclouds.com, a word cloud creator: www.wordclouds.com
YouTube video corpus creation tool: www.idiomstube.com/corpus
COVID-19 Vaccine Opinion Analysis, a web-based tool that tracks and monitors tweets surrounding the vaccines in real time: http://ailab.uniud.it/covid-vaccines/

Language teaching and learning resources

Compleat Lexical Tutor: www.lextutor.ca
IdiomsTube: www.idiomstube.com
Just the Word: www.just-the-word.com
Linguee: www.linguee.com
Sketch Engine for Language Learning (SkeLL): https://skell.sketchengine.eu/
Activities for introducing corpora and concordancing into the language classroom: See Lin (2024)

R packages and Python libraries for text analysis

NLTK: www.nltk.org
SpacCy: https://spacy.io/
TextBlob: https://github.com/sloria/TextBlob/
Stanford CoreNLP: https://stanfordnlp.github.io/stanfordnlp/
Vocabulary: https://pypi.org/project/Vocabulary/
R packages: stringR, tidytext, cleanNLP, qdap, tm, koRpus, lexicon, snowballC, RWeka, Rvest: https://cran.r-project.org/web/packages/available_packages_by_date.html

23
Cognitive linguistics

Bodo Winter and Florent Perek

A brief history

Cognitive linguistics is an interdisciplinary branch of linguistics that studies the intersection of language structure, language use, and the mind. Cognitive linguistics is not necessarily a monolithic, unified theory of language as much as a body of work that is brought together by a particular outlook on language. Historically at least, much work in cognitive linguistics saw itself in opposition to Chomskyan linguistics. The Chomskyan view of language accepts a modular view of the mind (Fodor 1983), within which language is seen as an informationally encapsulated cognitive system. In contrast, cognitive linguists assume a less modular view, emphasizing interactions between different levels of linguistic analysis (e.g. between syntax and semantics, cf. §4), as well as interactions between language and other cognitive systems, such as those used for perception and action. Another tenet of Chomskyan linguistics that cognitive linguists largely disagree with is the idea that language is predominantly innate. Instead, cognitive linguists take a usage-based view of language acquisition – that is, language is fully learned from exposure thanks to domain-general cognitive abilities, without relying on any cognitive blueprints that are specific to language or any kind of innate language ability (J. L. Bybee and Hopper 2001; Lieven 2016; Tomasello 2003).

Lakoff (1990) characterizes cognitive linguistics in terms of two primary commitments: the generalization commitment and the cognitive commitment (p. 40). Of these, we focus here on the cognitive commitment, which is arguably more important for characterizing the field. According to Lakoff's cognitive commitment, an adequate theory of language or the mind must be cognitively and neurally realistic, in line with evidence from other fields, such as cognitive psychology and neuroscience. As an example of this, consider Eleanor Rosch's influential work on prototypes (Rosch 1975; Rosch and Mervis 1975), according to which category structure is graded (rather than discrete), organized around radial categories where central members (the prototypes) are better members of the category than less central members. For example, a robin is a more prototypical bird than a penguin, and in Rosch's model, is assumed to be closer to the centre of a category. This work has been hugely influential in cognitive linguistics, which used Rosch's work to reject the notion that categories are defined in a hard-cut manner by distinctive features, as was common in Chomskyan-inspired approaches to semantics. The

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incorporation of Rosch's work into cognitive linguistic theorizing is an example of how the cognitive commitment was applied in practice.

As pointed out by Dąbrowska (2016), however, cognitive linguists did not always apply themselves fully to the cognitive commitment, focusing mostly on a few key results, such as Rosch's work on prototypes. Moreover, researchers have sometimes contented themselves with saying that their cognitive linguistic theories were in line with existing psychological and neuroscientific evidence without actually demonstrating this empirically. It is also important to stress that there are other approaches that also see themselves as being 'cognitive', such as Chomskyan linguistics; after all, Noam Chomsky was highly influential in the 'cognitive revolution' in psychology in the '50s and '60s (Chomsky 1959). Thus, identifying cognitive linguistics as uniquely paying attention to results from cognitive science is not a useful way of characterizing the field, and it does not do justice to other theoretical approaches that do the same.

Perhaps the best way to characterize cognitive linguistics, then, is to look at what type of work is commonly conducted under the banner of cognitive linguistics, and what specific theoretical approaches have been developed over time and are considered to be the 'canon' of cognitive linguistics. Seeing language as being non-modular and heavily interacting with other cognitive systems has led to a number of different theoretical approaches that drive research to this day. In this chapter, we highlight conceptual metaphor theory (§2), cognitive semantics and frame semantics (§3), and construction grammar (§4) as three canonical domains of cognitive linguistic inquiry. These by no means exhaustively characterize cognitive linguistics, but they help to get a flavour of the type of work that is commonly understood to characterize the field. In addition, we discuss research on gesture (§5) as one specific growth area for cognitive linguistics to highlight some newer research. Throughout these sections, we point to work where cognitive linguistics intersects with applied linguistics.

Conceptual metaphor theory

Conceptual metaphor theory is one of the core branches of cognitive linguistics (Gibbs 1994; Kövecses 2002; Lakoff 1990; Lakoff and Johnson 1980, 1999). In their 1980 book *Metaphors We Live By*, Lakoff and Johnson (1980) made the observation that rather than being merely a poetic device confined to specialized literary discourses, metaphor is part and parcel of everyday speech and writing. Lakoff and Johnson (1980) aimed to provide an account of the systematic patterns of how metaphors were used in everyday discourse. They noticed that many different kinds of metaphorical expressions appear to reflect the same underlying conceptualization. For example, the English language consistently uses spatial terms to talk about temporal concepts, as in expressions such as *Christmas is coming*, *Halloween is ahead of us*, *We are quickly approaching the deadline*, or *We have already moved past that phase of the project* (Evans 2004; Moore 2014). The fact that not just one expression but several expressions seem to reflect the same connection of space and time led Lakoff and Johnson (1980) to propose that there is an underlying Space Is Time metaphor that first and foremost exists in the mind. This conceptual metaphor is assumed to exist independently of language but motivates linguistic expressions such as the one listed. This outlook on metaphor is fundamentally 'cognitive linguistic' because it describes a connection between language (metaphorical linguistic expressions) and thought (underlying conceptual mappings).

Early work on conceptual metaphor theory was criticized for its circularity (Murphy 1996, 1997): a conceptual mapping, such as Space Is Time, was inferred from a set of linguistic expressions, and this conceptual mapping was subsequently used to 'explain' why the linguistic expressions follow a common structure. There are many different ways to answer this circularity concern (Gibbs 1996), chiefly by performing experiments in which speakers' behaviour demonstrates the existence of cognitive associations predicted by metaphor theory without directly using metaphorical language in the task (e.g. Boroditsky and Ramscar 2002; Casasanto 2008; Gibbs 2013; Gibbs et al. 2004; Meier et al. 2007; Meier and Robinson 2004; Schubert 2004; Winter and Duffy 2020; Winter and Matlock 2013). With respect to the Space Is Time metaphor, for example, it has been shown that changing the visually displayed length of a line on the screen influences people's judgements about the duration during which the line is displayed (Casasanto and Boroditsky 2008), thus supporting the idea that space and time are connected in the mind, not just in language.

Additional evidence that breaks free from the circularity concern uses multimodal data. Conceptual metaphors have been found in co-speech gestures as well (Cienki and Müller 2008; Müller 2009; Woodin et al. 2020), such as when moving the hands forward or backward when talking about the future or the past respectively (Casasanto and Jasmin 2012; Walker and Cooperrider 2016). The fact that not just linguistic expressions but also gestures reflect the conceptual spatialization of time is further evidence in support of an underlying mapping that gets expressed via different communicative channels. Additional non-linguistic evidence for the conceptual nature of metaphor comes from the analyses of pictures, commercials, and films (Forceville 2002; Ortiz 2011; Sobrino 2017; Winter 2014). All of this work can be seen as supporting the core tenet of conceptual metaphor theory, which is that linguistic metaphors are at least partially based on underlying conceptual mappings.

Conceptual metaphor theory is also one of the primary reasons why cognitive linguistic approaches generally assume that the mind is 'embodied', which refers to the idea that higher-level processes such as language are deeply connected with and sometimes even driven by lower-level processes such as those used for perception and action (Gallese and Lakoff 2005; Gibbs 2005). Consider the metaphor often paraphrased as More Is Up, thought to underlie a large range of constructions that use vertical expressions to talk about numerical quantity, such as *high number*, *low number*, *rising prices*, and the like. This conceptual metaphor, too, is supported by non-linguistic experimental evidence (for a review, see Winter et al. 2015) and gestural evidence (Winter et al. 2013). Cognitive linguists propose that the use of vertical terms to express quantity concepts is motivated by the fact that we frequently encounter a correlation between verticality and quantity in the real world, such as when putting cookies on a pile, where 'more' correlates with 'up' (Grady 1997; Lakoff 1987; Littlemore 2019; Winter and Matlock 2017). In that sense then, conceptual metaphors such as More Is Up are seen as embodied – that is, directly motivated through language-external perceptual experience.

The use of the term 'embodiment' in cognitive linguistics is, however, not without its critics (see discussion in Bergen 2019), and it has also been pointed out elsewhere that it is hard to exactly pin down what is meant by the term, especially since it is used very differently by different researchers (e.g. A. D. Wilson and Golonka 2013; M. Wilson 2002). The extent to which the mind and language are embodied is still hotly debated in cognitive science (Goldinger et al. 2016; Hickok 2014; Mahon and Caramazza 2008), and similarly, it is still unresolved to what extent abstract thought actually depends on embodied metaphors and to what extent abstract thought can exist independently of metaphor (Haser 2005; Winter and Yoshimi 2020).

These open issues notwithstanding, conceptual metaphor theory has profound implications for various branches of applied linguistics. Some work within the cognitive linguistic tradition

has looked at how language- and culture-specific metaphors may cause misunderstanding in the classroom (Littlemore 2001b); other work has looked at metaphoric competence as a target of second language acquisition itself (Littlemore 2001a; Littlemore and Low 2006), and as something that should be directly taught. Metaphor has also been hugely influential in discourse analysis (Cameron and Deignan 2006; Semino 2008), including critical discourse analysis (Charteris-Black 2011; Hart 2008). Experimental work on what are called 'metaphorical framing effects' furthermore shows that metaphor can change people's political opinions. In a now-classic study, Thibodeau and Boroditsky (2011) presented participants with descriptions of fictive cities in which crime was metaphorically described either as a beast or as a virus. When participants were asked what the city council should do to fix its crime problem, they recommended different policy solutions as a function of which metaphor was used, such as more law enforcement in the beast condition. That metaphor can directly affect decision-making has now been demonstrated for numerous domains, such as climate change (Flusberg et al. 2017). Metaphorical framing is also investigated with respect to health communication, including the discourse on the COVID-19 pandemic (Semino 2021; Wicke and Bolognesi 2020).

Cognitive semantics and frame semantics

Cognitive linguistics see meaning as conceptualization (Geeraerts 2006; Lakoff 1987), with particular linguistic expressions involving particular construals of the described state of affairs. These construals are often perspectival (Verhagen 2007) – that is, they are seen from a particular vantage point. Studying meaning as conceptualization deviates from the kind of truth-conditional semantics that is more closely affiliated with the Chomskyan tradition. As an example of how cognitive linguists emphasize the types of conceptualizations that linguistic expressions evoke, consider the pair of expressions *The fence runs along the road* and *The fence is next to the road*. Both of these can be true descriptions of the same scene, but only one of them uses motion language. Cognitive linguists suggest that the first sentence, which uses the motion verb *run*, implies a dynamic construal of a static scene, what is called fictive or abstract motion (Langacker 1999; Talmy 2000). Experimental evidence suggests that people actually perform a mental simulation when reading or listening to fictive motion sentences (Blomberg and Zlatev 2015; Matlock 2004; Richardson and Matlock 2007), such as imagining a path that is unfolding, or mentally scanning along an existing path with their inner eye.

Another cognitive linguistic approach to the study of meaning is frame semantics (Fillmore 1982). Whereas lexical concepts are considered distinct from encyclopaedic world knowledge in many approaches of the Chomskyan tradition, frame semantics breaks this divide, emphasizing that 'a word meaning can be understood only with reference to a structured background of experience, beliefs or practices, constituting a kind of conceptual prerequisite for understanding the meaning' (Fillmore and Atkins 1992: 76–77). This structured background of experience is described in terms of frames. The Commercial Transaction frame for example, includes such things as a buyer, a seller, the goods, and money. Some sentences may instantiate all of these frame elements, such as *The shopkeeper charged the man $1 for the milk*, where the underlined portions correspond to the frame elements – buyer, seller, money, and goods – of the Commercial Transaction frame. Other sentences can omit certain frame elements, thereby backgrounding certain elements of a described scene. For example, the sentence *The man bought the milk for £1* omits the seller, whereas *The shopkeeper sold the milk for £1* omits the buyer. Frame semantics proposes that by virtue of accessing the same Commercial Transaction frame, we recognize that these two sentences can be descriptions of the same scene from different perspectives. Frame semantics has led to the development of FrameNet (Ruppenhofer

et al. 2016), a database of such frames as the COMMERCIAL TRANSACTION frame that has found applications in computational linguistics (Gildea and Jurafsky 2002) and language teaching (Boas and Dux 2013).

Construction grammar

Construction grammar is the main cognitive linguistic approach to grammatical description and theory (Fried and Östman 2004; Goldberg 1995; Perek 2015). The term is best taken as referring to a family of tightly related approaches rather than one unified theory, such as cognitive construction grammar (Goldberg 2003), radical construction grammar (Croft 2009a), embodied construction grammar (B. Bergen and Chang 2021), sign-based construction grammar (Sag 2012), and fluid construction grammar (Steels 2012), to name only a few. Langacker's (Langacker 1987, 1991, 2008) cognitive grammar should also be subsumed into the construction grammar family, although it was developed somewhat independently and uses quite a specific descriptive apparatus. These many 'flavours' of construction grammar largely agree on their core principles, and mostly diverge in aspects of detail, such as the notation they use, the emphasis that they put on precise formalization, and the specific domain of application that they were designed for (for example, language typology for radical construction grammar, or language evolution research for fluid construction grammar). However, it is important to recognize that one can use construction grammar as a theoretical framework without subscribing to any of these strands in particular.

There are three central tenets shared by all construction grammar approaches: (1) linguistic knowledge is best described in terms of direct pairings of form with meaning (or function[1]), a.k.a. *constructions*; (2) constructions can be defined at any level of generality and complexity; (3) constructions are related to each other by inheritance links, and sometimes other kinds of links, into a vast network of constructions. These three tenets and how they relate to each other will be discussed in more detail. There is a fourth tenet that is not explicitly shared by all approaches but can be seen to underlie the three other tenets: (4) grammar is usage-based, in that it emerges through and is likewise constantly shaped by actual situated language use (J. Bybee 2006, 2010; Perek 2015; Tomasello 2003). In a usage-based approach, grammar is seen as 'the cognitive organization of one's experience with language' (J. Bybee 2006: 711), which helps to connect grammatical theory with general-domain cognition.

Earlier Chomskyan approaches to grammar (Chomsky 1965) are based on a strict separation between syntax and the lexicon, with the former containing rules to capture the grammatical behaviour of classes of lexical items listed in the latter. Much of the research that laid the groundwork for construction grammar (Fillmore et al. 1988; Kay and Fillmore 1999) was focused on the study of expressions that are problematic for the Chomskyan view (Taylor 2012). For example, the expression *let alone* (Fillmore et al. 1988) can be analyzed as a coordinating conjunction when it seems to link two noun phrases, as in *I don't eat fish let alone sushi*, but it can also be used with remarkable flexibility in syntactic contexts where no other conjunction can be found, as in *It would surprise me if John could pass the test, let alone Bill*. In some cases, *let alone* connects strings of words that are not even constituents in the conventional sense, as in *You couldn't get a poor man to wash your car for two dollars, let alone a rich man to wax your truck for one dollar* (Fillmore et al. 1988). This means that the rules governing the grammatical behaviour of *let alone* are idiosyncratic: they cannot be defined as general rules of syntax and must be described separately from other areas of grammar.

Another example of such a 'syntactic idiom' is the so-called *way*-construction (Goldberg 1995; Jackendoff 1990), as exemplified by such sentences as *The explorers hacked their way*

through the jungle and *She talked her way into the club*. There is nothing remarkable in the syntactic structure of these sentences: they consist of a noun phrase subject, a verb, a possessive determiner, the noun *way*, and a prepositional phrase. However, both sentences convey the idea that the subject referent undergoes motion (literal or metaphorical), while none of the words (in particular the verb) entail motion on their own; besides, the motion interpretation does not arise if the determiner preceding *way* is not a possessive co-referent with the subject (Goldberg 1995; Perek 2018); for instance, compare *He dug a way out of prison* (no motion entailed) to *He dug his way out of prison* (motion is entailed). Therefore, the meaning of motion can be seen as being conveyed by the syntactic pattern described, and thus, a form-meaning pair can be posited.

Early case studies of this kind showed that a constructional analysis is needed for expressions that straddle the border between lexicon and syntax, but they were also quick to point out that the same type of analysis can be extended to structures that are perfectly regular and predictable, such as those described by traditional phrase-structure grammar (Fillmore et al. 1988). A prime example of this is Goldberg's (Goldberg 1995, 2003, 2006) influential work on argument structure constructions (ASCs), a family of basic clause-level constructions that define how the arguments of verbs are morphosyntactically expressed (Perek 2015). For example, the caused-motion construction (Goldberg 1995) pairs the syntactic pattern subject-verb-object-locative PP with the notion that the subject argument causes the object argument to move to a certain location, as in *He put the pizza on a plate*. ASCs can be combined more or less flexibly with different verbs, and contribute their own constructional meaning to the sentence, as can be seen for instance when a verb like *sneeze* is used non-conventionally in the caused-motion construction, e.g. *He sneezed the napkin off the table* (Goldberg 1995: 9).

Constructions come in many shapes and sizes. They can be simple, like lexical items and bound morphemes (e.g. plural *-s*, agentive *-er*), or complex, like the idiom *pull one's leg* or the caused-motion construction, which consist of several identifiable components. Each of a construction's components, or slots, can be more or less specific, either fixed to a certain form (e.g. *way* in the *way*-construction), restricted to a closed set (e.g. the possessive in *pull one's leg*), or open to a wider range of items (e.g. the verb in the caused-motion construction), with many degrees in between. Constructions can be defined at any level of generality, and more general constructions (e.g. caused-motion) are linked to their more specific instantiations (e.g. caused-motion with the verb *put*) through inheritance relations, forming a taxonomic hierarchy.

Construction grammar has proven to be a popular approach to grammatical description, and over the years has seen use in various domains of applied linguistics, such as the study of second language acquisition (Ellis et al. 2016), clinical linguistics and aphasia (Hatchard 2021), natural language processing (Steels 2012), and foreign language teaching (De Knop and Gilquin 2016). In language teaching in particular, there is a growing body of research showing how a constructional approach could benefit language learners (De Knop and Gilquin 2016; Holme 2010a, 2010b; Wee 2007). As argued by Patten and Perek (2022), construction grammar is consistent with many of the most recent developments in language pedagogy, and Littlemore (2009: 169) suggests that construction-based language instruction provides 'a sort of middle ground between the categorical yet inadequate traditional "grammar rules" approach and the more accurate yet potentially overwhelming "lexical" approach'.

In recent years, the field has also seen the advent of 'constructicography', the lexicography of constructions (Lyngfelt et al. 2018), which aims to find, describe, and document constructions in various languages and to build constructions: comprehensive inventories of fully described constructions in a given language, typically stored in electronic form. As we are writing this chapter, construction projects in various languages are currently in progress at various

stages of development: English (Fillmore et al. 2012; Perek and Patten 2019), Swedish (Lyngfelt et al. 2012), Brazilian Portuguese (Torrent et al. 2014), German (Boas and Ziem 2018), Japanese (Ohara 2013), and Russian (Janda et al. 2018). In addition to increasing the descriptive coverage of construction grammar studies and providing the approach with wide-scope empirical validation, construction research lines up with the growing interest in construction-based language teaching and in fact supports the wider adoption of construction grammar in the classroom: indeed, if constructions are to be adopted more widely as a teaching approach, teachers and learners need descriptions of what constructions there are to be taught and learned, especially those that are most useful to language users. Accordingly, several of these projects have explicit pedagogical aims (Patten and Perek 2022; Perek and Patten 2019).

Gesture research

Cognitive linguistics is a continuously expanding discipline that intersects with various other subfields of linguistics. For example, whereas much past work in cognitive linguistics paid very little attention to the social dimension of language (Divjak et al. 2016), more and more work within cognitive linguistics calls for a closer consideration of sociolinguistics (Croft 2009b; Geeraerts 2016). Here, we cannot do justice to all of the possible extensions of cognitive linguistics. Instead, we highlight one of relatively more 'modern' strand of cognitive linguistics that showcases how the field continues to grow into new directions – specifically, gesture research. This area of research has been identified as a key growth area for cognitive linguistics (Cienki 2016), especially as it interacts with cognitive linguistic theorizing at multiple different levels.

When people speak, they almost always also gesture. Many researchers studying gesture view co-speech gestures as being part of language production rather than a process that is separate from it (Goldin-Meadow 2005; Kendon 2004; McNeill 1992). This view finds a natural home within the cognitive linguistic tradition with its focus on seeing language as an open-ended system that is connected with other cognitive systems, such as gesture. Moreover, gesture research has been influential in work on conceptual metaphor theory because, as mentioned, it is one of the key sources of evidence for conceptual metaphors that does not exclusively depend on language (Cienki and Müller 2008). Metaphorical gestures have been identified in many different domains besides Space Is Time metaphors (Casasanto and Jasmin 2012; Walker and Cooperrider 2016), including, for example, discourse focused on numerical information (Winter et al. 2013; Woodin et al. 2020), mathematical discourse (Marghetis and Núñez 2013; Núñez 2004, 2008), and transgender discourse (Lederer 2019), among many others.

Research on metaphorical gestures has shown that gestures can completely change the interpretation of an utterance. Consider the following question: *Next Wednesday's meeting has been moved forward two days. What day is the meeting on now?* This question is ambiguous and has two possible answers (McGlone and Harding 1998), either *Monday* or *Friday*, corresponding to two different perspectives on the Space Is Time metaphor (Boroditsky and Ramscar 2002). We can think of time either as moving towards us (as in the expression *Christmas is coming*), or we can think of us as moving through time towards temporal events (as in the expression *We are approaching Christmas*). Several experiments have demonstrated that the interpretation of the 'Next Wednesday' question fundamentally changes as a function of gesture, with forward-moving gestures (the speaker moves the hands away from the torso) leading to much more *Friday* responses than backward-moving gestures (Jamalian and Tversky 2012; Lewis and Stickles 2017; Winter and Duffy 2020).

Gesture also interacts with grammar. Cognitive linguists, for example, analyze grammatical aspect as involving different dynamic or static construals of temporal events (Langacker 2008),

with the English imperfective (e.g. *They were dancing*) involving an unbounded construal of an event in contrast to the perfective (e.g. *They danced*), which involves a bounded construal. This difference in conceptualization has received extensive experimental support (e.g. Fausey and Matlock 2011; Matlock et al. 2012), and crucially, aspectual distinctions are also reflected in co-speech gestures (Duncan 2002; Hinnell 2018; Parrill et al. 2013). For example, imperfective constructions may go together with longer and more repeatedly iterated gestures. The interaction between gesture and grammar is also pursued in work on multimodal construction grammar, which extends the idea of form-meaning pairings to include co-speech gestures at the form pole (Cienki 2017; Mittelberg 2017; Steen and Turner 2013; Zima and Bergs 2017). In fact, there is evidence that certain expressions co-occur with gestures the majority of time. For example, Woodin et al. (2020) found that in a sample of more than 500 speakers, metaphorical expressions of numerical quantity, such as *tiny number*, co-occur with gestures up to 80% of the time. Finally, given the ubiquity of gesture and its potential to reveal people's conceptualization, gesture research is also highly relevant for applied linguistics, with work exploring its role in second language acquisition and classroom interactions (Gullberg 2010; McCafferty and Stam 2009).

Outlook

Cognitive linguistics looks back on a big tradition of work that encompasses various aspects of language. The field has generated much insight into how language is structured and how it is used, at different levels of linguistic organization, chiefly syntax and semantics. However, as argued, cognitive linguistics is more of a framework than a unified theory; it is not as monolithic as Chomskyan linguistics, but it has multiple different theoretical approaches, such as construction grammar, conceptual metaphor theory, and frame semantics, being loosely connected via a shared vision of language as a usage-based system that is best characterized by its interactions with other cognitive systems. From this open-ended view of language stem new lines of inquiry for empirical research, such as looking at how gesture reflects conceptual metaphors and meaning distinctions predicted by cognitive theories of grammar. Throughout these further extensions into new territories, cognitive linguistics continues to be relevant for applied linguistics, including such domains as education, second language acquisition, and political discourse.

Related topics

second language acquisition; political discourse; conceptualizing language education

Note

1 The meaning of constructions often goes beyond propositional, descriptive meaning and is commonly made to include aspects of semantic interpretation that are traditionally considered within the realm of discourse and pragmatics, such as information structure and construal. Therefore, some scholars find the term 'function' more fitting when referring to constructional meaning (e.g. Goldberg 2003).

Further reading

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Dąbrowska, E. and Divjak, D. (2019) *Cognitive Linguistics – Key Topics*, Berlin: Mouton de Gruyter. (This book provides an introduction to cognitive linguistic analyses of a number of different topics, including polysemy, fictive motion, tense and aspect, and more.)

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24

Systemic functional linguistics

Lise Fontaine and Anne McCabe

Introduction

Systemic functional linguistics (SFL) has, from its conception, identified as an 'appliable' linguistics, rejecting an opposition between 'proper' and 'applied' linguistics. The value placed on the problem-solving abilities of the theory has shaped the framework, given its development alongside applications. Halliday states,

> An appliable linguistics, as I understand it, is a theory which tackles problems and tries to answer questions – but questions that are asked, and problems that are raised, not by professional linguists so much as by other people who are in some way concerned with language, whether professionally or otherwise. There are large numbers of such people: educators, translators, legal and medical specialists, computer scientists, students of literature and drama, . . . ; and it is their 'take' on language that is being addressed, at least to the point of clarifying what sorts of questions can usefully expect to be asked, and whether or not there is any hope of coming up with an answer.
>
> *(Halliday 2013b: 128)*

This outward-facing orientation of SFL distinguishes it from other linguistic theories, which focus more on the cognitive or mental processes and states involved in language use. SFL is less interested in this intra-organism perspective on language, and far more in the inter-organism view – that is, the 'problems' that arise through language use in social interaction. In this sense, its orientation as an appliable linguistics is built-in to address 'problems' that include, for example, language teaching/learning, ecolinguistics, multimodality, translation, and studies of language in medical and clinical settings. After providing the background to SFL, this chapter examines applications of SFL to these areas of language use and concludes with some future directions for SFL.

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Language as social semiotic

One of the founding principles of systemic functional linguistics (SFL) is that language is as it is because of the functions it has come to serve in human life (Halliday 1970: 324). This focus brings with it a contextually situated perspective on language:

> [T]he view is that it is impossible to make sense of linguistic choices without reference to context and also that it is impossible to make sense of context without reference to linguistic choices. Linguistic choices are strongly influenced by the contexts of the situation in which they occur.
>
> *(Berry 2017: 43)*

This dialectic relation between language use and context allows us to account for not only the different functions of language but also how language varies, whether that is developmentally as with language learning or contextually in different social uses. At the core of the SFL framework is the concept of choice, which for SFL is 'the core mechanism for expressing meaning, creat[ing] a contrast between what is chosen and what is not but could have been' (Fontaine 2013: 3).

> In speaking, we choose: whether to make a statement or ask a question, whether to generalize or particularize, whether to repeat or add something new, whether or not to include our own judgement, and so on. It would be better, in fact, to say that we 'opt', since we are concerned not with deliberate acts of choice but with symbolic behaviour, in which the options may express our meanings only very indirectly.
>
> *(Halliday 1966/2002a: 174)*

From this perspective of meaning as choice, the language system is viewed as meaning potential, a semiotic resource, where choices are organized as systems. To illustrate, polarity is a simple system in English, which includes the options 'positive' and 'negative'. This system describes the full set of potential meanings with respect to polarity – that is, positive polarity or negative polarity. Within the SFL framework, systems and system networks are typically represented visually as kind of graph or map where paradigmatic relations are represented as options vertically, as illustrated in Figure 24.1. In this sense, part of the meaning of positive polarity is that it is not negative, and part of the meaning of negative polarity is that it is not positive (see Halliday 1966/2002a: 170).

In SFL the language system, as meaning potential, is represented as a network of such systems. It is beyond the scope of this chapter to give a detailed account of the relations among

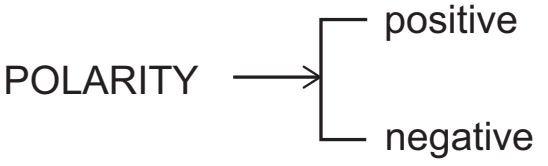


Figure 24.1 The polarity system in English

systems, such as how systems relate in the network, or of other key features of system notation, such as how probable a certain option is or how the selection of one semantic option is expressed in language. However, in the simple example discussed here, we can easily imagine that positive polarity is expressed in the clause in English through the absence of any negative marker and that positive polarity tends to be, in almost all registers, the far more frequent selection.

Returning to the point concerning the functions language serves, we find within the SFL framework two main uses of function. The first relates to what we might think of as structural or grammatical functions, such as subject, agent, or theme. This sense of function refers to 'the roles occupied by classes of words, phrases, and the like in the structure of higher units' (Halliday 1971/2002b: 89). A more generalized notion of function is used to account for the functions which language serves in a given context of situation. The term 'metafunction' is used to denote this more generalized type of function and is discussed further here.

The language system, then, can be described in terms of these two types of function. The more structural type is explained in terms of lexico-grammar, and since language use is considered to always occur within a specific situational context, the metafunctions are seen as organizing the semantics layer, which accounts for the relationship between lexico-grammar and context. Given that SFL takes a stratified account of language, lexico-grammar, semantics, and context are viewed as different strata. Although context is viewed as extralinguistic (e.g. informal/formal distinctions), it relates to language in ways in which language is in some sense accountable. For example, a formal context is constructed by language, and it is language which can signal a shift from a more formal context to an informal one, even within the same conversation (see Berry 2017). The relationship among these three main strata is illustrated in Figure 24.2. For a more detailed discussion of semantics and stratification see Taverniers (2011).

We can now map the two types of function onto the two linguistic strata given in Figure 24.2. The structural (grammatical) functions are related in the relevant systems associated to the lexico-grammar and the functions of language, the metafunctions, relate to the semantics stratum.

The semantic stratum is organized by the metafunctions. For our purposes here, we offer a brief description of the following three main metafunctions of the semantic stratum: experiential, interpersonal, and textual. In some SFL literature, four main metafunctions are given rather than three: ideational, including both experiential and logical; interpersonal; and textual. The experiential metafunction includes language functions related to construing experience

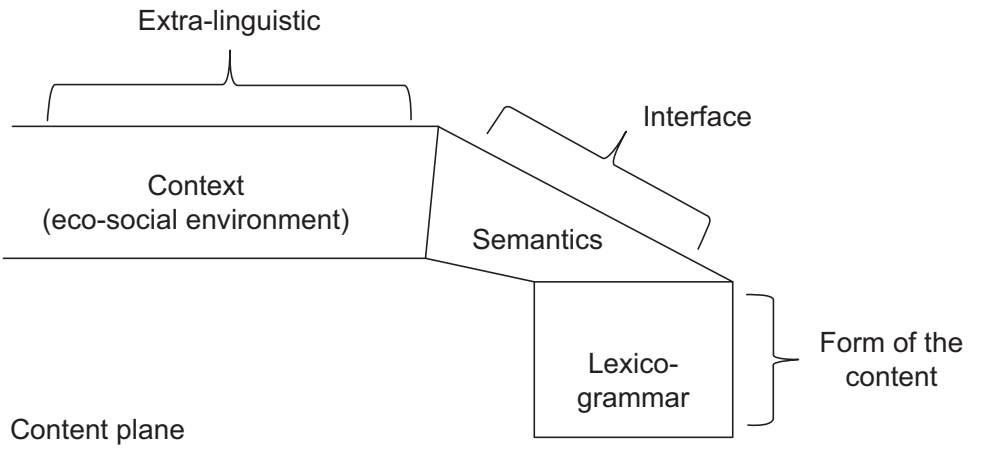


Figure 24.2 The three main strata within SFL (adapted from Halliday 2013a)

and the speaker's representation of their experience, including all processes, participants, and attending circumstances. The experiential metafunction accounts for the functional roles of participants and the type of process they are involved in. In examples 1 and 2, while 'humans' expresses the function of subject in each clause, in example 2, 'humans' is represented as much more active than in example 1.

1 Humans are creatures of habit (SketchEngine enTenTen20, Kilgarriff et al. 2014).
2 Humans are destroying these plants and trees (ibid.)

The process expressed in example 2 is material, representing action, with two participating entities, 'humans' and 'these plants and trees', representing actor (the participant carrying out the action) and goal (the participant affected by the process), respectively. These roles would not adequately describe the situation represented in example 1, where the first participant, 'humans', is being assigned an attributive value ('creatures of habit', which functions to describe 'humans'). The process in this case is relational and 'humans' in this instance is represented as a carrier. The full meaning potential of the experiential metafunction is represented by the system of transitivity (see Halliday and Matthiessen 2014 for details).

The interpersonal metafunction concerns all aspects of (social) interaction and personal participation on the part of the speaker in the speech event (see Halliday 1970). Invented examples 3 and 4 illustrate key differences among the two metafunctions. In example 3, the speaker interacts with an addressee through the use of the interrogative mood in order to seek information. In example 4, the speaker imposes a particular evaluation on the utterance through the use of the modal verb and negative polarity as expressed by *shouldn't*. In contrast to the system of transitivity, the interpersonal metafunction is organized principally by the mood and modality systems, which are explained in detail in Halliday and Matthiessen (2014).

3 Are humans destroying these plants and trees?
4 Humans shouldn't destroy these plants and trees.

Finally, the textual metafunction serves to relate the clause to its surrounding text and to its context and includes functions related to organizing the message of the clause. In examples 1 to 4, the textual organization clearly hinges on the initial element 'humans' in each case. The focus of the message concerns 'humans', giving the addressee a sense of what the message is about. This metafunction is organized mainly by the system of theme (see Berry et al. 2014), although it is worth noting that the textual metafunction is also related to the concept of cohesion more broadly (see Halliday and Hasan 1976). The passive version of example 2, given as example 5, illustrates how the experiential and interpersonal metafunctions remain unchanged despite a different theme, where now the message of the clause focuses on 'these plants and trees' but the process and participants are unchanged and the clause is still in the declarative mood.

5 These plants and trees are being destroyed by humans.

The metafunctions, as expressed in the clause, are typically analyzed as box diagrams or tree diagrams to illustrate the mappings of the various functions. This analysis is often referred to as a three-strand analysis since it includes the three main metafunctions. The box diagram for example 2 is given in Table 24.1. See Halliday and Matthiessen (2014) for details of the functional labels.

Table 24.1 Three-strand analysis of example 2

	Humans	*are*	*destroying*	*these plants and trees*
Experiential:	Actor		Material process	Goal
Interpersonal:	Subject	Finite	Predicator	Complement
	Mood		Residue	
Textual:	Theme	Rheme		

Examples 1 to 5 offer an illustration of how the experiential, interpersonal, and textual metafunctions are expressed in the clause. Semantics, as organized by these three metafunctions, serves as the interface for its adjacent strata of context and lexico-grammar (see Figure 24.2). The relationship between strata is one of realization. Realization is the principle that accounts for how 'patterns on one level both construe and construct patterns on another level' (Cassens and Wegener 2008: 208) – that is, context is realized as semantics and semantics is realized as lexico-grammar. In this sense, lexico-grammar construes semantics which in turn construes context.

Lexico-grammar represents a 'construct of wording' (Halliday 1981/2002a: 221), where lexis and grammar are viewed as two perspectives on the same object of study. The unit of the clause is the central unit, providing the structural elements which serve to express the semantic functions. The lexico-grammar is well-discussed throughout the SFL literature (notably Halliday and Matthiessen 2014), most recently by Berry (2019).

Context is organized by the parameters of field, tenor, and mode of discourse, commonly referred to as the variables of register (see Lukin et al. 2011). Each parameter is described as follows:

- Field represents the social context, seen as 'a field of significant social action' (Halliday 2002b: 55).
- Tenor includes social relationships and roles, where a text is viewed as 'an intersubjective event' (Halliday 1981/2002a: 245).
- Mode concerns the symbolic organization of language, which includes 'the role assigned to the text, including both medium and rhetorical function' (ibid.: 226).

Within SFL, each of these contextual parameters relates to a given metafunction, as explained by Halliday (1979/2002a: 201):

> We shall then find a systematic relationship between these components of the situation and the functional components of the semantic system. It appears that, by and large, the field – the nature of the social activity – determines the ideational meanings; the tenor – the social statuses and roles of the participants in the situation – determines the interpersonal meanings; while the mode – the part assigned to the linguistic interaction in the total situation – determines the textual meanings.

The view of language as social semiotic has provided SFL with a unique perspective since it means language must be explained as expressing meanings that are created within a social system (Kress 1976). For those who are interested in how language acts both socially and semiotically, this is useful because it lets us explain how social reality is encoded in language, both in terms of how language is a means of reflecting on things and how it is a means of acting

(symbolically) on people (Halliday 1978). As Butler and Gonzálvez-García (2014: 488) have concluded, one of the strengths of SFL is accounting for the structure and properties of extended stretches of discourse. This combination together with a developed model of context can provide a fruitful approach for addressing key areas of applied linguistics.

Language and Learning

The most extensive application of SFL has been to the field of language development, an application which has had important effects on SFL theory. Halliday's interest in linguistic theory and description stemmed from his own questions related to foreign languages, first learning Chinese, and then teaching English to Chinese speakers and Chinese to English speakers in the 1950s. That interest broadened to include mother tongue education, through dialogue with sociologist Basil Bernstein (1987), whose coding orientations, or the tacit organizing principles underlying the language use of social groups, were useful for characterizing the linguistic resources that children bring from home to school. During the 1960s, other key SFL linguists, such as Ruqaiya Hasan, Margaret Berry, and Robin Fawcett, joined the dialogue, as did mother-tongue English teachers, leading to the Breakthrough to Literacy project (Mackay et al. 1970). '[T]his whole experience of interaction between language specialists and teachers played a critical part' in the development of SFL, where theory and application 'are constantly reinforcing each other' (Halliday and Hasan 2006: 27).

Applications include a ground-breaking child language development study in the early 1960s, in which Halliday kept detailed notes, informed in method by ethnographic field work on Chinese dialects, of his son's vocalizations and their functions starting at nine months of age. Halliday (1975) analyzed those notes through a meaning-based framework, centred on the functions that children express as they interact with their caregivers during the protolanguage phase, where 'proto-linguistic signs have one particular function, a "use-in-context"' (Taverniers 2011: 1113). These functional vocalizations express a limited range of meanings and differ from the adult language in form. They include the instrumental ('I want'), regulatory ('do this'), interactional (e.g. greetings), personal ('here I am'), heuristic ('tell me why'), and imaginative ('let's play'). During a transition phase, which coincides with children's rapid advance in vocabulary as they navigate environmental needs and cultural understandings through interaction, these microfunctions combine into two larger macrofunctions, the pragmatic (encompassing the instrumental, regulatory and interactional) and the mathetic, or learning, function (encompassing the heuristic, personal, and imaginative and adding an informative microfunction). Here, children begin to convey both mathetic and pragmatic meanings in one utterance (e.g. 'cookie!' meaning both 'that's a cookie – and I want one!'). The final developmental phase then gives way to the full meaning-making resources of the adult, where utterances are metafunctional. This pathway, from the microfunctions to the macrofunctions to the metafunctions, has been further traced through other studies (cf. Torr 1997; Sriniwass 2007), most notably by Claire Painter (1984; 1999), which provide greater detail of how specific linguistic resources develop through the phases, along with suggestions for refining the framework. This developmental research reverberated on the development of SFL theory, especially on viewing language as metafunctional and stratified (Taverniers 2011). Stratification, for example, is necessary for demonstrating the move from protolanguage to full language, where an utterance combines interpersonal, experiential, and textual meanings. Stratification is also necessary for the modelling of grammatical metaphor, a key resource for tracing the development of abstraction in the language of schooling.

Tracing and supporting the development of meaning-making resources through academic contexts provides extensive applications of SFL. Halliday moved to the University of Sydney in the 1970s, where he established an applied linguistics program, joined by Jim Martin. Martin spearheaded a series of projects, such as Write-it-Right, designed to elucidate the kinds of writing that children need for success at school. This work again brought together linguists and teachers through classroom-based action research and led to what has become known as the Sydney School of genre-based pedagogy (GBP) (Martin 2000); thus, the linguistic theory was joined to a pedagogical approach. This approach makes explicit the linguistic features of school language using a descriptive, resource-based focus; rather than viewing school language as a set of rules to be learned, SFL joins other literacy initiatives in viewing it as a set of resources to be drawn on in creating meanings in ways which vary from everyday and home-based uses of language (de Silva Joyce and Feez 2016). Teachers scaffold students into effectively using these features through the teaching-learning cycle (TLC), a classroom macro-genre developed by Joan Rothery and others through the Sydney-based projects (cf. Rothery 1996). Teachers build students' understandings of the linguistic features of a given genre through text deconstruction, followed by joint construction of a text that fits the genre, followed by students' independent constructions. Its explicit pedagogy has been extended through David Rose's (Rose and Martin 2012) Reading to Learn (R2L), which breaks down the deconstruction phase into further detail. The depth and breadth of applications of these SFL-based pedagogies have led to robust studies involving researchers and teachers in refining and adapting SFL metalanguage to create understandings to be used in the classroom of how learning about and through language works (de Silva Joyce and Feez 2016), adapting to account for multimodal meaning-making resources (Macken-Horarik et al. 2018).

As with other applications of SFL, GBP has led to a difference within SFL in theorizing the stratification of language; Martin (1992; 2014) focuses attention beyond the clause by renaming the semantic stratum as discourse semantics and by splitting context into register and genre. While some SFL theorists object to this difference with Halliday's stratified model (Lukin et al. 2011), its simplicity and classroom relevance has allowed GBP to be applied in an ever-growing range of educational contexts. GBP has also been criticized as reifying genres and then teaching them as decontextualized products and as marginalizing home- and community-based genres. These criticisms have pushed the applications into demonstrating students' ability to critically adapt the genres to their needs, responding to Freire's (1993) call for reflection on the complexities of educational experiences and their impact on student learning and identities (Gebhard 2019). It has led to applications of genre descriptions with students in multilingual/multicultural classrooms (Harman 2018), as SFL-based descriptions can be applied to any genre or register, thus building bridges between home and school language. The descriptions are applied to characterize genres in other languages, where GBP and R2L pedagogies are used for mother-tongue teaching (cf. Ramírez et al. 2021). SFL pedagogy also supports foreign language teaching in content and language integrated learning (CLIL) educational contexts (Llinares et al. 2012; de Oliveira and Schleppegrell 2015).

While school-based L2 contexts have seen extensive applications, SFL-based pedagogies have had less of an impact on general foreign-language learning. Halliday is cited as a leading theorist motivating the communicative language teaching (CLT) approach (McCabe 2017); however, CLT saw no real uptake of SFG, as the approach focused more on Hymes' communicative competence (Widdowson 2009) and the functions of language in context rather than on language as a system of meaning-making resources. In L2 English teaching, some attention is paid especially in written texts to SFL-based discourse features such as theme – rheme (Martínez Insua 2018), nominal group complexity (Parkinson and Musgrave 2014), and

grammatical metaphor and appraisal resources (Ryshina-Pankova 2018); these inclusions tend to be in university contexts, such as English for academic purposes (EAP) and for learners whose proficiency level is at the level of language user rather than language learner. Swales' (1990: 2) seminal book cites Halliday et al. (1964), especially the notion of register, as a cornerstone for research on English for specific purposes (ESP) contexts. EAP and ESP applications often provide SFL-based descriptive accounts of the language used, with implications for pedagogy, rather than direct classroom applications, with some exceptions of EAP university studies that apply GBP (cf. Yasuda 2015; Parkinson et al. 2007) and R2L (Ramírez 2018). SFL also shows a modest but growing influence in L2 teaching beyond English. Highlighting the benefits of an SFL-based focus on language development, given its affinity with, for example, Vygotskyan-based sociocultural approaches, Byrnes (2019) describes a curriculum for German language teaching/learning, from beginner to advanced, amongst other examples. Troyan (2021) provides a collection of papers on SFL-based pedagogy in languages, such as German, French, Italian, Japanese, and Arabic.

SFL in the field

Having discussed in the previous section the applications of SFL to language learning, in this section we briefly discuss a selection of broader applications. We begin with one of the challenges Halliday identified in 1990 for Applied Linguistics.

> [T]he dominant mode of economic activity that human beings engage in is no longer that of exchanging goods-&-services, as it has been since the beginning of settlement, but that of exchanging information. And information is made of language. It is an applied linguistic world, in which even numbers, and numerical data become significant only in the context of discursive construction.
>
> *(1990: 23)*

This perspective is perhaps more relevant now given the crisis we face at the time of writing, with the COVID-19 global pandemic and the resulting battle of information (e.g. the polemic discourses of anti-vaccination vs pro-vaccination). The discursive nature of information exchange might not be so clearly related to applied linguistics if it were objectively neutral, but as Lukin (2017) explains, language is not neutral; it is 'ideologically saturated'. The SFL concept of construal, as briefly mentioned, provides a useful framework for revealing the ways in which grammatical features construe meaning, a meaning that is ideologically biased.

The field of ecolinguistics has emerged as one of the main developments from Halliday's claim that 'language does not passively *reflect* reality; language actively *creates* reality' (1990: 11). Halliday highlighted problems such as 'classism, growthism, destruction of species, pollution and the like' as 'not just problems for the biologists and physicists. They are problems for the applied linguistic community as well. I do not suggest for one moment that we hold the key. But we ought to be able to write the instructions for its use' (Halliday 1990: 31). Stibbe (e.g. 2020), who has been central in taking up Halliday's challenge, explains ecolinguistics as

> questioning the stories that underpin our current unsustainable civilization, exposing those stories that are clearly not working, that are leading to ecological destruction and social injustice, and finding new stories that work better in the conditions of the world that we face.
>
> *(Stibbe 2014: 117)*

Thirty years ago, Halliday described a 'disinformation society', based on the relatively unknown fact 'that our demands have now exceeded the total resources of the planet we live on' (1990: 23). While it has become impossible to have not noticed our climate crisis, the disinformation society is more a reality in 2021 than ever before. For Halliday, 'the task for applied linguistics here is to *interpret* the grammatical construction of reality' (1990: 23). As we saw earlier, SFL provides a holistic framework, from lexico-grammar to semantics to context, with which to offer such an interpretation.

Some areas of concern for applied linguistics, however, do not exclusively involve language. A semiotic communicative act is always multimodal to some extent. According to O'Halloran et al. (2019: 433), SFL 'provides an unrivalled platform for modelling, analyzing, and interpreting multimodal texts, interactions, and events involving language and other resources such as images, scientific symbolism, sound, embodied action, and so forth'. Multimodality is a growing and developing field, and as an application, its value is important to understand. Wegener and Fontaine (in press) argue,

> Access to multiple modalities gives us certain advantages for meaning making in that we can use it for redundancy, or expansion. We can make use of redundancy for emphasis or as a reminder, and we can make use of expansion as a way to split the semiotic load between modalities. This splitting of the semiotic load is incredibly useful particularly in some domains such as surgery or air traffic control, or indeed any situation where participants are engaged in a shared task with common goals.

SFL provides useful tools 'to investigate commonalities, counterpoints and differences between "what is going on" visually and verbally' (Macken-Horarik et al. 2018), thus enabling understandings of meaning-making in a wide range of domains.

It is hopefully clear that the SFL framework is designed to account for language use in context and is therefore a framework which offers a rich account of context (see Wegener and Fontaine in press). While we do not have space here to survey the full range of uses of SFL in the broader field, we would like to mention two further examples. The first is translation and the second is language in medical and clinical settings.

Functional theories of language are increasingly seen as attractive to those working in translation as 'a welcome reaction against the earlier insistence on equivalence of text meaning as a universal translation norm' (Jakobsen 2017: 24). The SFL concept of register, according to Kunz and Teich (2017: 549), has been 'very successful in translation studies'. This success is illustrated well by Sellami-Baklouti (2018), who uses register to provide a theoretical interpretation as well as an analytical method to investigate the translation of dialects, 'which represents one of the most important challenges to the translator' (p. 121). Steiner (2019: 760) demonstrates the utility of drawing on the SFL framework for theorizing and modelling the process of translation in terms of its: 'potential to make connections to investigations of the semiotics of culture and language' in the sense that texts 'are not simply reified products or structures of elements on a single level, but networks of relations among configurations of meanings across situations and cultures'.

A more recent area of particular interest to those working with applied SFL is that of medical and clinical language. As with translation, the study of language in the broad area of health and well-being draws substantially on register as the contextual parameters. In their study of consultations between an oncologist and terminally ill patients, Karimi et al. (2018) use register analysis to characterize the textual realizations of good practice within the changing context of culture of expectations in medical care. In an excellent overview of language and medicine in

the SFL framework, Moore (2019) demonstrates the contributions made by SFL approaches to this field including possible improvements in the healthcare system.

Asp and de Villiers (2019) present an overview of the significance of an SFL-informed approach to clinical settings, including aphasia, schizophrenia, and Alzheimer's disease. A particularly exciting development which offers a new and promising approach to experimental and diagnostic work is given by Trevisan and García (2019), who use the SFL framework to design an experimental protocol for using 'naturalistic narratives' in experimental settings. They show the potential for SFL to bridge an important gap between linguistic theory and neurological understanding, enabling connections to be explored between motor processing and language processing systems. According to Trevisan and García (2019: 43–44), their studies

> offered crucial evidence regarding the key role of sensorimotor mechanisms for grounding action information (namely, action verbs) in naturalistic narratives. Also, and more crucially for present purposes, they stand as a concrete illustration of a powerful appliable niche for SFL: the text-construction protocol anchored in this theory proved instrumental to circumvent an apparent methodological dead-end constraining psycholinguistic and neurolinguistic research.

Future directions of SFL for applied linguistics

Halliday's (1990) contribution to the Ninth World Congress of Applied Linguistics has been referred to throughout this paper because of its direct relationship to the field of applied linguistics. As we close this chapter and put our thoughts to future directions, let us return to a final point from that paper: '[W]ith all the varied activities that go under the name of applied linguistics we have still not really achieved a transdisciplinary perspective' (1990: 7). We may well want to debate whether this is a valid goal for applied linguistics in 2021. There does seem to be, however anecdotal, evidence that applied linguistics has managed to create what Halliday was hoping for – that is, 'new forms of activity which are thematic rather than disciplinary in their orientation' (ibid.: 141). However, equally it seems that many of us remain within our own areas, identifying as one type of linguist or another and focusing only on a particular discipline. In this sense, new disciplines are forming (e.g. computational linguistics), but these are not truly transdisciplinary in Halliday's sense. Drawing on disciplinary knowledge from outside of the study of language brings with it huge challenges which are non-trivial. In addition to an investment of time, a whole new discourse has to emerge in order to facilitate the thematic orientation.

It is the nature of a theory that shapes how it contributes to the solution of challenges and problems in our natural and social world and helps to develop new tools and technologies. At the time of writing, everyone in the world has been living through an unprecedented global pandemic, one that has brought enormous challenges and problems. According to Halliday (1990: 12), 'major upheavals in human history are also linguistic upheavals'. While the pandemic has mobilized many to converge and cooperate at local, national, and international levels, we have also found that this crisis has revealed significant areas of risk. The disparities and inequalities in our societies and communities constitute a crisis as well, including the consequences of inequalities in basic human rights such as access to clean water, food, and education, as well as inequalities in relation to language, nationality, gender, and more. Given the urgency of the global climate crisis, ecolinguistics, for example, offers an important opportunity to develop truly transdisciplinary responses. Academics, civil society, public bodies, development projects, and corporations along with local communities need to work together

at planning stages, not only focusing on disaster response and recovery efforts (Mehmood and Ahmed 2021). If we really are, as Halliday suggests, living in an applied linguistics world, then our duty is clear: we need to work together, in transdisciplinary ways, in order to face the challenges before us.

Related topics

language learning and language education; grammar; critical discourse analysis clinical linguistics; social semiotics and multimodality; translation and interpreting

Further reading

Mahboob, A. and Knight, N. (eds.) (2010) *Appliable Linguistics*, London: Continuum. (This edited volume focuses on the SFL interpretation of an appliable linguistics. It includes a range of contributions, including translation, genre studies, appraisal, media, multimodality, and social policy.)

McCabe, A. (2021) *A Functional Linguistic Perspective on Developing Language*, London: Routledge. (This monograph provides an introduction to systemic functional linguistics for language education, as well as the theory behind and abundant applications to key areas of language development: early childhood, school, and additional language development.)

Sellami-Baklouti, A. and Fontaine, L. (2018) *Perspectives from Systemic Functional Linguistics*, London: Routledge. (This edited volume combines theoretical and applied perspectives from within systemic functional linguistics and is organized by the following four main themes: theory, multilingual and translation studies, language learning and teaching, and genre analysis.)

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25

Generative grammar

Shigenori Wakabayashi

Introduction

One of the major contributions of generative grammar for the study of language has been to foreground facts about language that previously went unrecognized, such as the fact that *who* and *he* can refer to the same person in 1a but not in 1b and that every native speaker of English knows this without ever having been taught it:

1 a Who said he didn't vote?
  b Who did he say didn't vote?

Another fact that every native speaker of English knows without instruction is that *he* and *John* can be the same person in 2a, whereas in (2b) they must be different:

2 a When he arrived, John was wearing a fur coat.
  b He was wearing a fur coat when John arrived.

In 1 and 2, the linear ordering of the relevant constituents, *who . . . he* and *he . . . John*, is the same in both pairs. The difference in meaning derives from structural differences that are not obvious from the surface strings. Generative grammar highlights the abstract organizational properties of sentences that give rise to such differences, which play a major role in our ordinary use of language.

Those who undertake applied linguistics research have often misunderstood the goals, scope, and limits of generative grammar. This chapter aims to clarify what generative grammar is and how it offers insights into some important areas of applied linguistic research. Generative grammar provides a reliable basis for research and has opened many paths to important lines of inquiry.

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General background: assumptions in generative linguistics

Context-free grammar

Generative grammar adopts certain approaches to language. First, it deals with sentences independent of discourse and context, despite the fact that we typically use language in context. In fact, it is impossible to understand the intention of a speaker without any reference to the context. Consider the 'meaning' of the following sentence:

3 Mike occasionally drinks tea around this time of day.

This sentence can be interpreted in a number of ways: for example, as an answer to a question uttered by a person who is looking for Mike, or as a complaint uttered by Mike's brother who works for their family business along with Mike (Mike always disappears around late afternoon, which is the busiest time for their business), or something else. However, this does not mean sentences can only be studied in context. Such interpretations are possible because the sentence 3 is grammatical and meaningful. This is not a trivial matter. Consider the following sentences:

4 a Occasionally, Mike drinks tea around this time of day.
b Mike drinks tea around this time of day occasionally.
c *Mike drinks occasionally tea around this time of day
d *Mike drinks tea around this time occasionally of day

Sentences 3, 4a, and 4b are 'good', while sentences 4c and 4d are 'bad', whatever the contexts are, despite the fact that all the words are identical and that it is easy to work out what 4c and 4d mean.

Furthermore, even when a sentence is not 'meaningful', it can be grammatical. The famous contrast between 'colourless green ideas sleep furiously' and *'furiously sleep ideas green colourless' demonstrates this fact (Chomsky 1957: 15). The former is meaningless yet grammatical, but the latter is neither meaningful nor grammatical. Speakers of a language can distinguish sentences that are grammatical in their language from those that are not, independent of what they mean.

This leads us to conclude that certain context-free rules distinguish grammatical sentences from ungrammatical ones. What makes this possible is the knowledge we have of English, as represented in each speaker's brain. 'What is the nature of our knowledge of language?' is one of the questions that generative linguists seek to answer.

Productivity, the poverty of the stimulus, and the objective of generative grammar

Every day we use sentences that we have never encountered. The innovation of generative grammar in Chomsky (1955, 1957) was its emphasis on trying to develop an explicit theory of how language learners can, on the basis of encountering a finite set of examples of language, come to understand and produce combinations in a potentially infinite number of sentences.

This system not only allows for the production of grammatical sentences but also disallows ungrammatical sentences.

Every human being acquires a mother tongue. The acquisition of the system despite limited input is known as the poverty of the stimulus (or the logical problem of language acquisition, or Plato's problem). Consider examples 1 and 2 again. How do we know that *he* can refer to the same referent of *who* in 1a and *Jack* in 2a but not in 1b and 2b? It is unlikely to be from instruction that we have received or, in fact, by any external means. Instead, the source must come from inside us: tacit linguistic knowledge that exists in our mind is likely to be derived from the psychological device used for first language acquisition (L1A). This device operates in L1A regardless of what language is to be acquired – that is, this device, the language acquisition device (for grammar) or universal grammar (UG), is universal. In fact, Chomsky considered human languages (English, Japanese, Hindi, etc.) to be variations of one human language, UG. The main inquiry of generative grammar is to describe what it is.

Modularity, I-language (competence)/E-language and three factors

In generative grammar, linguistic knowledge is considered to be independent of other cognitive systems. This is supported by physiological data, especially by the existence of cases where linguistic knowledge is dissociated from other cognitive capacities. On the one hand, there are people whose linguistic abilities are normal or even enhanced, while their non-linguistic capacities are impaired (Smith and Tsimpli 1995). On the other hand, there are people whose linguistic knowledge is deviant but other cognitive abilities are normal (e.g. people suffering from aphasia) (See also Stojanovik, Perkins and Howard, this *Handbook*, Volume 2.)

As illustrated in example 4, the grammaticality of a sentence is independent of its meaning. This implies that the grammar consists of a 'syntactic module', which is independent of meaning. Traditionally, linguistics is divided into subfields, including phonology, morphology, syntax, semantics, and pragmatics, each of which can be considered to constitute a module, with the rules of each module existing/operating independently of the others (though they interact at the interfaces among them). This chapter focuses on morphology and syntax, but it should be noted that numerous studies on phonology and semantics are conducted as well, not only in theoretical linguistics but also in studies of L1A, SLA, and other areas of applied linguistics.

Positing a multi-layered system makes it possible to investigate the causes of different behaviours, and it is possible to suggest that, for example, L2 learners' syntactic knowledge is native-like but their morpho-phonological system is not (Hazneder and Schwartz 1997; Prévost and White 2000). Moreover, linguistic knowledge is connected with non-linguistic knowledge through interfaces, and it is suggested that transferring 'information' between the linguistic module and non-linguistic modules may also cause non-native-like behaviour/interpretation among L2 learners (Tsimpli and Sorace 2006; Sorace 2007).

In generative grammar, what is directly observable is referred to as E-language (for *external*-language). The object of research is linguistic knowledge (I-language, for *internal*-language; i.e. competence) (Chomsky 1965, 1986a, 1995). I-language is considered to be determined by the following three factors (Chomsky 2005):

Factor 1: Genetic endowment
Factor 2: Experience, or primary linguistic data (PLD)
Factor 3: Principles not specific to the language faculty

The first factor is specific to the language faculty and operates as a constraint on all human languages. The second factor is the data that cause the change in linguistic knowledge that occurs through language acquisition. Some part of E-language may not play a role in language acquisition (Carroll 2001, 2017; Hawkins and Casillas 2008); therefore, it should be noted that PLD for language acquisition may not straightforwardly reflect frequency or saliency statistics in E-language. The third factor refers to the general cognitive system used for language acquisition and other cognitive change, as well as economy principles that influence computation in language use.

The development of generative grammar

Changes in theoretical frameworks

There have been several radical revisions to the framework of generative grammar: the standard theory (Chomsky 1955, 1957), the extended standard theory (Chomsky 1965), the principles and parameters framework (Chomsky 1981, 1986a), and the minimalist program (Chomsky 1995, 1999) (see Lasnik 2005 for more detailed description).

The earliest model in Chomsky (1955) offered a phrase structure grammar, where sentence structures can be depicted in tree diagrams. An important assumption in this model, as well as subsequently, is that every sentence has more than one structure, each at different levels or points of derivation. In the standard model (Chomsky 1965), by inserting items from the lexicon into the structure, a 'deep structure' is constructed, and then transformations apply to construct a 'surface structure'.

Chomsky (1981) proposed the government and binding theory, or the principles and parameters framework, which assumed that all human languages have common abstract rules, called principles, and vary along a limited number of choices among values (mostly binary) of parameters associated with principles. In later versions of this framework, parameters are considered to be associated with functional categories, such as C (complementizer), I (inflection) or T (tense), and D (determiner), and the differences in the syntax of individual languages are attributed to formal features associated with these categories (e.g. Chomsky 1993).

This approach evolved into the minimalist program (Chomsky 1995), where all operations are based on the demands at interfaces to 'sound' and 'meaning'. Constructing a syntactic

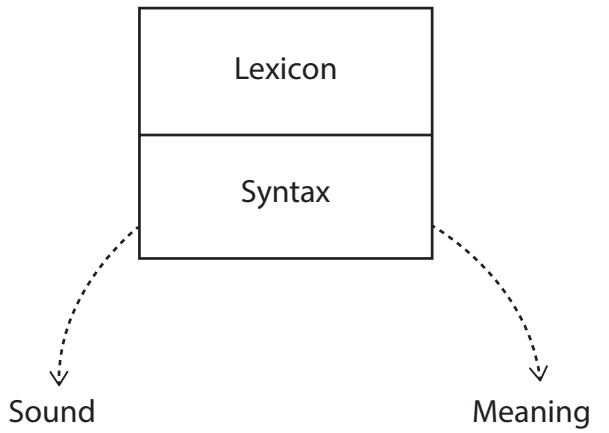


Figure 25.1 A model of knowledge of language

object starts from the lexicon. A structure is constructed by connecting one item with another to make a larger item (merge), and another operation (agree) takes place where necessary (e.g. between *He* and *is* in *He is a linguist*) in syntax. The schema of this model is shown in Figure 25.1.

Within the minimalist program, further theoretical development continues to take place, with various phenomena having been investigated under such frameworks. Generative approaches to second language acquisition (GenSLA) is one, for example (cf. Slabakova et al. 2020).

Research strategy behind generative grammar

Unlike traditional grammars, generative grammar has tried to explain why certain structures are *not* allowed in a grammar (Smith 2005). An abstract rule of 'ungrammaticality' is presumed to be present innately: its acquisition cannot take place because no input can tell children certain types of sentences are not allowed in the target grammar.

Besides, generative linguists try to account for differences among adult languages, historical changes, L1A, and SLA. The principles and parameters framework (Chomsky 1981, 1986a) offered principles (e.g. the subjacency condition [see the next section]) to capture the universal constraints and parameters to capture the variation across languages. For example, the 'wh-parameter' says that wh-phrases move to a specific place in a syntactic structure in some languages (e.g. English), while they may stay in the original position in other languages (e.g. Chinese). This difference is determined by parametric values: English has the value [+ wh-movement] and Chinese has the value [− wh-movement]. Parameters also tell us that no other possibilities are allowed. For example, the wh-parameter says that there is no language that allows (or requires) wh-phrases to move somewhere other than the specific syntactic position.

Based on the advancement of research in principles and parameters, Chomsky (1995) proposed the minimalist program, where cross-linguistic differences are attributed to formal features associated with functional categories. Now, sentence construction (or derivation) involves only two operations in syntax (merge and agree) based on formal features, under certain principles of economy.

Progress in the minimalist program makes more detailed description of human languages and comparisons among languages possible. The cartographic approach (Rizzi 1997) studies the periphery of sentential structure and has successfully produced insights into language variation. Distributed morphology (Halle and Marantz 1993) posits that the properties associated with morphemes (in the traditional sense) may consist of different sets of items (i.e. syntactic, phonological, and semantic), and each set may play roles at different points in the construction of sentences. These frameworks offer platforms for theory-based discussion and lead to proposals armed with certain predictive power (e.g. Wakabayashi 2021, and see the next section).

Generative grammar and applied linguistics

Theoretical linguistics and applied linguistics

Generative grammar offers a theoretical framework that can be applied to different types of phenomena, including L1A, SLA, and third (or later) language acquisition (L3/LnA), linguistic behaviour among bilingual and multilingual speakers, language disorders and attrition, and heritage speakers' knowledge.

Generative approaches to L1A

For its whole history, an important inquiry for generative grammar has been how our first language (L1) is acquired. Child grammar develops very quickly and rather uniformly (e.g. Brown 1973; Radford 1990). If UG is innate, the burden of L1A is reduced because children do not have to entertain any logical possibility incompatible with UG.

The principles and parameters perspective promoted theory-based studies of child grammar and provided a theoretical framework for describing it in terms of what is available innately and what must be acquired. Beginning with Hyams' (1983) study on the acquisition of overt sentential subjects by child learners of English, a number of such studies have been carried out.

The existence of UG, however, does not mean input is not important in L1A. Yang (2003) proposes a principled explanation based on corpus data for the role of input in L1A, showing that parameter values are set in accordance with available input in L1A, where saliency and frequency play important roles.

Early GenSLA: UG or not UG

The theoretical assumptions of generative grammar – for example, the claim that knowledge of language constitutes a modular system – are also applicable to SLA research. In fact, early studies of SLA (e.g. Corder 1967) suggested that the nature of SLA resembles L1A, involving processes based not only on linguistic input but also on learners' innate knowledge.

However, some researchers consider L1A and SLA to be fundamentally different: UG works in L1A but not in SLA (Bley-Vroman 1989, 1990, 2009). The 'UG or not UG' question was debated intensely throughout the 1980s (see Eubank 1991). One property used to address this debate involved the availability of a constraint on wh-movement. The movement of wh-phrases is constrained by structure rather than by the linear distance between the position where the wh-phrase is base generated and the position where it is pronounced (Ross 1967). In example 5, the distance is greater in 5a than in 5b, but only (5a) is grammatical.

5 a *What* did Tom believe that John said that Jack wrote?
  b **What* did Tom reject the claim that he wrote?
  cf. Tom rejected the claim that he wrote *this document*.

Moreover, theoretically speaking, it is predicted that some ungrammatical sentences are worse than other ungrammatical sentences (Chomsky 1986b). Compare the sentences in example 6 with 5b:

6 a **What* did the picture of surprise you?
  cf. The picture of *my brother's house* surprised me.
  b **What* did Mike meet the man who was wearing?
  cf. Mike met the man who was wearing *a red jacket*.

Some languages have wh-movement while others do not. When wh-phrases do not move, the constraints related to wh-movement are irrelevant. Suppose a learner's L1 is of this type but the target language has wh-movement. If UG, including the constraint exhibited in these examples – the subjacency condition (Chomsky 1977) – operates in SLA, these learners should reject violations of this constraint, including sentences like 5b. Moreover, if learners are sensitive to differences in degrees of ungrammaticality (Chomsky 1986b), learners' intuitions

should come from the same kind of knowledge that native speakers have – that is, a grammar of English constructed based on UG. The crucial point is that this difference cannot be learned from input as none of these sentences, nor any data that could alert learners that these sentences are ungrammatical, would be encountered in the input.

Martohardjono (1993) carried out an experiment with three groups of L2 learners and a native-speaker control group. All learner groups' results, including those whose L1 (Chinese) does not have wh-movement, showed differences among sentence types similar to those in the native speakers' responses. Hence, it is plausible to conclude that UG constrains L2 learners' grammars.

Another finding related to wh-movement is that L2 learners and L1 acquirers produce similar non-target-like forms: Japanese-speaking learners produce sentences like (7) (Wakabayashi and Okawara 2003), which is also found in the speech of English-speaking children (Crain and Thornton 1998). This again supports the claim that L2 learners' grammar is based on UG.

7 What do you think what is in the bag?

Hence, we have strong evidence that UG operates in SLA. Other types of overuse errors, such as overuse of *be* or *to*-infinitives, could not be expected if SLA were solely usage-based because no input would lead learners to produce such errors (Wakabayashi 2021).

Although some may argue that the operation of UG should lead L2 learners to acquire native-like competence (since UG results in children becoming native-speakers of a language), this reasoning is flawed: the availability of UG is a necessary condition for L1A but is not a sufficient condition. Without UG, a language cannot be acquired, but UG alone does not guarantee the success of language acquisition. In fact, L2 learners' grammars, even non-target-like ones, are much more restricted than the range of logically possible grammars; in particular, they fall within the range of natural languages (Thomas 1991).

Advances in GenSLA

Based on the hard evidence in support of UG operating in SLA that accumulated by the mid-1990s, GenSLA advanced to a new stage of inquiry, proposing and examining models/hypotheses of SLA. The main focuses were the initial and end states of L2 grammars, L2 learners' use of linguistic knowledge (parsing), and learnability problems. Because of space limitations, only a few will be presented here.

Some models differ in terms of how much of UG is deemed available or in the role of L1 in SLA. One major hypothesis is the full transfer/full access model (Schwartz and Sprouse 1994. See also Schwartz and Sprouse 2021), which proposes that learners' L1 knowledge serves as the initial state grammar in SLA and that the learner grammar changes under the sanction of UG. Another group of models assumes that the initial grammar lacks functional categories, which are rather acquired in the course of development (Vainikka and Young-Scholten 1994), and when a functional category comes to be used, the same behaviour seen in L1A may appear as well (Wakabayashi 1997, 2002; Hawkins 2001. See also Westergaard 2021). These models continue to be examined against empirical evidence from a variety of theoretical perspectives.

Since the late 1990s, learners' difficulties with morpho-syntactic operations and the effects of pragmatic information on syntactic objects have been intensively investigated. The question is why a property might be difficult to acquire even when evidence for it in the input is plentiful.

One model is the failed functional features hypothesis (Hawkins and Chan 1997, cf. Tsimpli and Roussou 1991), which is formalized under the minimalist program (Chomsky 1995) as

the interpretability hypothesis (Hawkins and Hattori 2006; Tsimpli and Dimitrakopoulou 2007), according to which L2 learners are unable to acquire a type of formal feature that is not instantiated in their L1. Some argue against this, suggesting instead that learner difficulties lie in mapping the syntactic object onto phonological structure (the missing surface inflection hypothesis: Hazneder and Schwartz 1997; Prévost and White 2000). The interface hypothesis (Tsimpli and Sorace 2006; Sorace 2007) suggests that L2 learners' linguistic knowledge is native-like within each module; their non-native behaviour is due to problems lying at the interfaces and especially at the interfaces between linguistic knowledge and other knowledge systems. The feature reassembly hypothesis (Lardiere 2008) suggests that L2 learners must reassemble formal features into different functional categories in SLA when their L1 and L2 have different feature assemblies. Wakabayashi (1997, 2002) suggests that development in the use of target-like (and non-target-like) morphosyntax in SLA arises through improved (but not close to perfect) consistency in the inclusion of features when setting up lexical items in the lexicon (called numeration).

Progress in the minimalist program has offered more sophisticated frameworks for GenSLA. For example, Wakabayashi (2021), couched with distributed morphology, suggests that operations in a submodule, called narrow syntax, are more economical than operations in another submodule, morphology, in L2 grammar, and this 'economy' results in observed non-native-like learner behaviour: overuse of certain free morphemes and underuse of corresponding bound morphemes.

Other researchers have attributed L2 learners' lack of processing certain morpho-syntactic items to the parsing system. The shallow structure hypothesis (Clahsen and Felser 2006, 2018) suggests that learners ignore morpho-syntactic properties that their grammar cannot deal with and rely solely on semantic clues. Others attribute differences between native speakers and L2 learners to the learners' reduced lexical access or limited cognitive resources (McDonald 2006; Hopp 2006, 2010) or to their limited ability to generate expectations about upcoming linguistic information (Grüter et al. 2017).

GenSLA deals with learner grammar, which is considered to be representational, and theories of transition (i.e. development) was out of focus for a long time. One significant progress in recent studies in L1 acquisition and GenSLA is to offer a model of transition in grammars (i.e. how development or change takes place) with reference to psycholinguistic models (Slabakova et al. 2020) (but see Wakabayashi 1997 for an early study). For example, advancing Yang's (2003) findings in L1 acquisition, Yang (2018) suggests that input processed in the L2er's mind is different from the input L1 acquirers (i.e. children) process at an early stage of development, which yields differences between L1A and SLA, although hard evidence for this contrast has not really been brought forth yet (Slabakova et al. 2020). The role of input must be considered in a model of learner knowledge, and how frequency and saliency in input influences learner grammar should be interpreted carefully in the context of the interaction between input and the learner's knowledge at the time of exposure, including transfer of information among submodules (Carroll 2001; Hawkins and Casillas 2008).

Dekydtspotter and Renaud (2014) propose that the parser acts as (part of) the language acquisition device, with which learners acquire feature assemblies and lexical items. By parsing sentences, I-language develops incrementally to connect sound and meaning specific to the target language. Phillips and Ehrenhofer (2015) suggest that in anticipating linguistic information, learners use their L2 grammar not only to parse a sentence but also to predict how sentences will proceed; that the ability of prediction varies among learners, based on how much information they extract from sentences; and that learners who generate predictions conduct analyses comparing the input with their predictions, which ultimately leads to successful SLA.

Sharwood Smith and Truscott (2014) claim that processing takes place within linguistic modules and that L2 develops in a series of constructions for a new object in I-language to parse a novel input, by activating items in working memory and reactivating the same object when the same input must be dealt with. When sufficiently (re)activated, such items are acquired.

We should note that these studies that discuss parsing as a trigger for language development are distinct from the emergentist or usage-based approach in assuming that learner grammars consist of linguistic module(s) (Slabakova et al. 2020). Changes in representational knowledge take place under the sanction of UG when learning new lexical items and their associated rules, through real-time use of the knowledge.

Data in GenSLA

In GenSLA, I-language is examined through E-language data. Production data, including learner corpora, are inadequate for examining what forms learners do *not* produce. Hence, experimental methods have been used extensively in GenSLA.

Grammaticality/acceptability judgement tasks, where participants judge whether a sentence is acceptable or indicate how natural it sounds, have been widely used. They are useful but the participants' meta-linguistic knowledge may or may not be sufficient when performing them. Picture or sentence selection tasks, where participants select one of two or more choices that matches a given context, are also widely used. Psycholinguistic tools, such as the measurement of reaction time, tracking of eye movement, or monitoring electrical responses in the brain (e.g. ERP), have been used to minimize the effects of non-linguistic knowledge.

For example, Wakabayashi (1997) investigated why third person singular *-s* in English is difficult for L2 learners to use consistently. Wakabayashi (1997) used reading time measurements in self-paced reading and found that intermediate Japanese learners of English are sensitive to overuse errors concerning [person] agreement, as in 8a, but insensitive to those concerning [number], as in 8b.

8 a *You speaks English.
  b *The students speaks English.

Data from event-related potentials (ERP) support this finding (Wakabayashi et al. 2007). Wakabayashi et al. (2021) report that the same asymmetry is observed in self-paced reading data from Chinese-speaking learners of English for sentences containing pronominal subjects (e.g. *They speaks English* vs *You speaks English*), and propose that this asymmetry reflects a certain difference between [number] and [person] features given in UG (Chomsky 1995). Considering learners do not fail to judge ungrammatical sentences with overuse of this morpheme in offline tasks probably because of their metalinguistic knowledge (Wakabayashi 1997), it is one of the solutions to use psycholinguistic data to examine learners' unconscious sensitivity to features.

Another important point revealed in GenSLA is that different data collection methods will involve different cognitive activities. Hokari (2015) reports that French-speaking and Japanese-speaking learners of English as well as native speakers of English show sensitivities to the ungrammaticality of preposition drop, as in sentence 9, in a self-paced reading task but did not reject it in an acceptability judgement task, suggesting that non-linguistic knowledge may be involved in the latter task to the extent that conceal their unconscious linguistic knowledge.

9 *Which topic did the students talk at the meeting?

Pedagogical implications

Some applied linguists may consider generative grammar and GenSLA to have little pedagogical implication, which is wrong, as GenSLA actually has important implications for pedagogy (Slabakova et al. 2020). Nevertheless, we should be careful to recognize that GenSLA is a scientific discipline (i.e. one that seeks to reveal truths underlying surface observations), and hence, implications for language teaching are best seen as a bonus and not a requirement nor even an objective of linguistic theories or SLA research (White 2021).

Such bonus includes at least four varieties (cf. Slabakova et al. 2020; White 2021). One is, as Martohardjono (1993, discussed earlier) and many studies have revealed, learners know more than what is available in the input or from their L1. These properties do not have to be taught. The second type is that learners have great difficulties in using some items or rules even if they are simple/transparent (e.g. 3ps *-s* in English). In this area, the discrepancy between explicit and implicit knowledge is robust, so even when learners are aware of what to use, they may nevertheless fail. Therefore, learners' production of non-native-like forms should be regarded as 'natural'. The third type is concerned with the rule(s) associated with an item that has complex and opaque properties (e.g. the definite article in English). Precise description of these properties is not available at the moment in the form of pedagogical grammar and advances in linguistics and educational materials are required.

The last type demands faithful consideration: Interpretation of empirical studies may be difficult. Since instruction, or any kind of input, may interact with a learner's linguistic system, what and how certain rules are taught should be considered in terms of learners' linguistic knowledge, the way L2 grammars change, and how they are used. White (1991) showed that instruction on word order (the placement of frequency adverbs such as *often*) to French-speaking learners of English had effects immediately after teaching, which later disappeared. This implies that explicit teaching may affect linguistic knowledge to a limited extent (cf. Schwartz and Gubala-Ryzak 1992). However, White et al. (1996) found that instruction on the interpretation of the Japanese reflexive pronoun *zibun* significantly increased target-like interpretation, and the effect lasted. Shirahata (2015) reports that instruction produces different effects on different grammatical rules for learners at different levels of proficiency. These studies show that instruction may have different effects on different target properties (e.g. adverb placement vs interpretation of reflexives) in accordance with learners' knowledge at the point of instruction.

GenSLA studies offer a 'bonus' for what to teach rather than guidance on how to teach (White 2021). However, whether an 'implication' from research findings to practice (i.e. teaching) is correct or not is an empirical and practical question, the answer to which will require collaboration among GenSLA, instructed SLA research, and language teaching. Rothman and Slabakova (2018) observe that GenSLA is ripe for collaboration with researchers in other tracks of investigation to an extent much greater than has been occurred.

New populations in GenSLA

L3/Ln acquisition is now widely investigated, where all topics in GenSLA are relevant, including the initial stage, cross-linguistic influence, and learnability issues, among others. Conditions in L3 contexts are naturally more complex than L2, while the insights in this burgeoning field will have a substantial impact on SLA studies. For example, proposals have been made concerning language transfer, such as the typological primacy model (Rothman et al. 2019), which suggests that the initial grammar of L3 acquisition is fully transferred from either the learner's L1 or L2 but not both. Naturally, other models and related issues are currently being

examined, and there are many potential areas for investigation from both theoretical and empirical perspectives (Schwartz and Sprouse 2021).

Other populations investigated from generative perspectives include individuals undergoing language attrition, with grammars impoverished in comparison to an end-state grammar because of insufficient use and/or as a consequence of acquiring another language (Schmid and Köpke 2017), and heritage bilinguals, individuals whose language acquisition arises in a family that uses a language different from the one spoken in the society around them. Findings in these areas are of interest to SLA study. For example, certain non-target-like behaviour is common among heritage bilinguals and adult L2 learners, and hence, such behaviour cannot be attributable to age differences between L1A and adult SLA (Montrul 2008).

Generative grammar serves as a theoretical framework for new inquiries into complex phenomena. This is because the theory provides researchers with a framework for making cross-linguistic comparison and predictions about development. Language is used in contexts, and contexts consist of many entangled factors, but a study of linguistic knowledge must be carried out by establishing the appropriate target of scientific investigation.

Summary

Every day we produce and understand novel sentences. Our knowledge of language is what makes this possible. This knowledge system is constrained and abstract, as illustrated with the examples at the beginning of this chapter. Learner behaviour shows that language use is far beyond the repetition of memorized chunks; a learner grammar that generates target-like and non-target-like linguistic behaviour is sanctioned by constraints common to all human languages – that is, Universal Grammar.

In applied linguistics, one of our primary objectives is to investigate what our knowledge of L1, L2, or Ln is, how it is acquired, and how it is used. There have been several radical shifts in theoretical paradigms within generative grammar, but its central purpose has remained unchanged throughout its history. Extensive facts and several important models/hypotheses have been brought to bear, none of which could have been proposed without a reliable theoretical framework. Insights obtained in generative grammar will surely continue to play important roles in applied linguistics.

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Related topics

psycholinguistic approaches to language learning; multilingualism; language attrition

Further reading

Hawkins, R. (2001) *Second Language Syntax: A Generative Introduction*, Oxford: Blackwell. (This is an accessible introduction to generative approaches to second language acquisition [GenSLA].)

Rothman, J. and Slabakova, R. (2018) 'The generative approach to SLA and its place in modern second language studies', *Studies in Second Language Acquisition*, 40: 417–442. (This discusses the relations among generative based and other lines in SLA studies.)

Slabakova, R., Leal, T., Dudley, A. and Stack, M. (2020) *Generative Second Language Acquisition*, Cambridge: Cambridge University Press. (This short element is a summary of studies in GenSLA.)
White, L. (2003) *Second Language Acquisition and Universal Grammar*, Cambridge: Cambridge University Press. (This classic book discusses developments in GenSLA since 1990.)

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26

Psycholinguistics and second language acquisition

John Field

Early issues: critical period and second language acquisition

The notion that there might be a critical or sensitive period during which human beings are particularly receptive to language had obvious attractions for early researchers in SLA. Might the critical period hypothesis (CPH) explain why some older learners have difficulty in learning a second language? Might it support the received idea (popular among educators in the 1970s) that it was good policy to begin second language instruction as early as possible in a school syllabus?

In the event, little evidence has been obtained to support the CPH and none that marks a clear cut-off point after which second language learning becomes markedly more difficult. There has also been little that demonstrates an 'early start' advantage for language learning in national school systems. A study of classroom learners of English in Barcelona aged 8, 11 and 14 (Muñoz 2006) suggested that in fact it was the *oldest* of the three groups which made the greatest progress – particularly in grammar. The difference between the ages was smallest in phonological areas (speech perception and spoken fluency).

Something similar seems to apply in non-school contexts. A widely quoted study by Snow and Hoefnagel-Höhle (1978) followed a set of English speakers acquiring Dutch while living in the Netherlands. They were in three age bands (8 to 10, adolescent and adult). The adolescents made the most marked progress, followed by the adults. Here, again, the closest differences between the age groups were in pronunciation performance. For an informed review of these 'younger is better' studies, see Singleton (2003).

While this early field of research did little to validate the CPH, it set a useful precedent by illustrating the need for SLA researchers to distinguish carefully between learner behaviour in two distinct conditions:

- *Instructional* language acquisition in a classroom context where exposure to the L2 is sporadic and controlled in terms of content. The learning process begins with the first class and a major variable is the frequency of the instruction.
- *Immersive* acquisition through residence in a country where the target language is spoken. Here, exposure is extensive and ungraded for difficulty. The starting point is the age of arrival (AoA) in the host country.

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The results obtained suggested that various aspects of language might follow different developmental paths. For example, studies have discovered that, in immersion situations, most children with an AoA earlier than eight years old seem to go on to develop native-like pronunciation, as compared with a much smaller proportion of adults. Conversely, there is evidence that, in immersion, adults tend to perform strongly on grammar with some even achieving an accuracy close to native (Birdsong 1992). A possible explanation can be found in the greater cognitive capacity of adults, which enables them to tackle unfamiliar patterns more analytically than a younger learner might.

Early issues: order of acquisition

Another early strand of SLA research extended the notion of a fixed order of acquisition to the situation of the L2 learner. If indeed human beings possess an innate learning mechanism, the argument went, then there should be clear parallels between the order of acquisition manifested by an L1 learner and that followed by an L2 learner acquiring the same language.

This ignored the large differences in circumstances between L1 and L2 learners. The former are infants, exposed to the target language all day long and with no prior expectations. By contrast, L2 learners have more limited exposure to the target language but have already developed a capability for problem-solving when faced with unfamiliar input. They also possess a source of reference in their first language, which inevitably shapes expectations of the new one, and they have established experience of what the four skills (listening, speaking, reading, writing) demand.

From the outset, researchers failed to find a connection between the patterns of acquisition in L1 and those in L2. Dulay and Burt (1973) recorded no similarity between the order of acquisition of English morphemes[1] in their L1 and L2 data – but they did find evidence of similarities between L2 learners with different first languages (Chinese and Spanish). This suggested that, if there were any fixed order of L2 acquisition, it might reflect (1) the intrinsic difficulty of certain features of the target language or (2) the extent to which the roles of the morphemes studied resembled or differed from those in L1. A meta-analysis of 15 studies of morpheme acquisition (Goldschneider and De Keyser 2001) confirmed the first hypothesis by tracing the order in which morphemes were acquired in relation to their characteristics (frequency, regularity, perceptual prominence, syntactic category, semantic complexity). However, a more recent review drawing on 18 morpheme studies (Luk and Shirai 2009) provides evidence for hypothesis 2. It concludes that similarities and differences between the functions served by morphemes in English and those of the first language (Spanish, Japanese, Chinese, and Korean) also play a part.

Explicit and implicit knowledge

Traditional methods employed in instructed L2 acquisition make use of *explicit knowledge* (e.g. in the form of grammar rules). This is less evident in today's classrooms, where there is a preference for presentation based on exemplification, extensive use of task-based learning and a greater focus on skills acquisition. However, instructors still have to rely to some degree upon abstract precepts, if only to correct errors. This sharply differentiates immersive acquisition from instructive. Immersion relies heavily upon the learner tracing patterns of meaning in random samples of the L2 – in other words, upon *implicit knowledge* inferred from what has been heard or read.

There has been considerable interest in how implicit knowledge of language is acquired. Typically, the research exposes participants to samples of artificial language without prior

explanation of what is targeted. To give an example, Williams (2005) produced clips of English speech which included a set of four artificial determiners (*gi, ro, ul, ne*). Participants were told that they distinguished items by distance (*gi* and *ro* for near and *ul* and *ne* for far) but were not told that they also represented animacy (*gi* and *ul* are used with animate objects, and *ro* and *ne* are used with inanimate). After exposure to multiple examples featuring these determiners, participants were asked to do a sentence completion task. Here, they showed a significant learning effect, which indicated that, alongside the explicit information about distance, they had implicitly acquired a sense of which determiners had been attached to animate nouns and which to inanimate.

A similar task (Rebuschat and Williams 2009) investigated word order. After exposure to a large number of samples of sentences employing English words but German word order, participants proved capable of judging whether sample sentences fitted this model (were 'grammatical') or not. They also demonstrated a consistent level of confidence in their own judgements, despite the fact that they were unaware of precisely what they had learned. See Williams (2009) for a review of this area of research; and Rebuschat (2015) for a set of wide-ranging papers.

The phenomena described so far might seem to conflict with Schmidt's (1990, 2001) widely quoted *Noticing Hypothesis*. This was based upon Schmidt's own diary account of acquiring Portuguese, which suggested that, for features of a second language to be acquired, it is important that they should be 'noticed' i.e. that an effort of attention should be directed at them. In support of the premise, Schmidt cites cognitive models of memory processes which assert that attention is 'the necessary and sufficient condition for long term storage' (2001: 16).

In point of fact, the two views are not necessarily contradictory. What Schmidt was concerned with was not simply the recognition of a new feature of the L2 but also the wish to store it in order to integrate it into one's own performance. Robinson (1995: 296) refers to this as 'detection plus rehearsal in short term memory'. This is very different from the type of implicit learning that takes place with no effort of attention but simply by dint of the acquirer encountering multiple instances of a word or a syntactic pattern over a period of time.

A similar distinction is sometimes made between *intentional* and *incidental learning*. The terms have particularly been applied in investigating the acquisition of vocabulary (Paribakht and Wesche 1999). A committed early-stage learner might well read a text with the purpose of committing to memory any new lexical items that are encountered. However, it also happens that L2 readers read for enjoyment: aiming to make sense of a text in spite of the presence of unfamiliar lexical items that are only peripherally processed. That does not necessarily mean that traces of those items are subsequently deleted from memory; indeed, over a period of time and several more encounters, they may well enter the reader's repertoire without requiring any effort to retain them.

Cognitive processes in acquiring L2

Mainstream linguistics tends to foster a view of second language learning in terms of encountering and committing to memory new forms of phonology, vocabulary, and syntax. A major contribution of psycholinguistics has been to focus attention instead on the process of acquisition rather than the content. It has represented acquiring a new language as a form of *expertise*, with parallels in other routinized activities such as learning to drive or to play the piano. These operations entail mastering underlying physical processes to the point where they no longer demand attention and can be performed automatically. The effect is to free up our limited resources of working memory so that we can take full account of higher-level information

(e.g. the road ahead or the overall melody). For an L2 speaker/listener, that information might be a record of the conversation so far; for a reader, a recall of the text.

The cognitive psychologist J. R. Anderson (2014: Chapter 9) specifically associates this type of development with second language acquisition. His model of expertise, known as ACT-R (adaptive control of thought – rational) represents the way in which separate items of *declarative knowledge* (knowledge that) become combined to form *procedural knowledge* (knowledge how). He envisages three stages:

- A cognitive stage based upon discrete pieces of knowledge
- An associative stage where the pieces of knowledge are combined into a process
- An autonomous stage where accessing the target becomes automatic

The first stage is open to question in relation to current language teaching methodology, where the emphasis has moved away from a heavy reliance on declarative knowledge in the form of grammar rules. However, the overall message is plain. In the short term, an inexperienced L2 user inevitably has to focus a great deal of attention on accuracy: a speaker on assembling grammatically and phonetically correct utterances, a listener on decoding what has been said. Because of our limited working memory resources, it is only when these lower-level processes have become automatized that the user is able to direct full attention to following the line of argument of a conversation. In highlighting the part played by automatization, ACT-R thus endorses the current pedagogic emphasis upon exposing learners to multiple samples of the L2 in use: whether through introducing grammar in the form of examples, through task-based activities, or through training that focuses separately on each of the four skills.

Storing and retrieving a second language

Much psycholinguistic enquiry has focused on the precise nature of linguistic information and on the ways in which first language users acquire, store, and access it. The findings have implications for our understanding of the types of knowledge that an L2 learner has to acquire. We briefly consider three of them – relating to phonology, lexis, and syntax.

Phonology

There remains a widespread assumption (including among some teachers of L2 pronunciation) that the sounds of a language are recognized by a simple process of matching them on a one-to-one basis with some kind of template in the mind. This cannot be the case, given the wide variability of phonemes in natural speech. Co-articulation causes the form of any phoneme to vary quite markedly according to those that precede or follow it. There is also considerable variation between speakers, in terms of voice pitch, speech rate, and accent.

This poses a serious challenge to anyone attempting to account for how a child manages to acquire and subsequently reproduce the phoneme values of their first language – or for a similar process in L2 acquisition. Solutions have included the suggestions that phonetic information is stored in the mind at the level of the syllable or as a set of prototype phonemes against which real-world versions can be matched. However, recent opinion has moved strongly in favour of an *exemplar* solution (Bybee 2001), in the light of new evidence that our minds are information stores with enormous capacity for storing samples of language (Dąbrowska 2004: Chapter 1). The assumption is that, over time, we build up traces in memory of many variants of the phonemes that we have encountered. We also store traces of different speakers'

voices – hence the ease with which we recognize the voices of people we have only occasionally met. Repeated exposure and accumulated traces allow us to become familiar with accents which we initially found hard to decode.

This has implications for how phonology is handled in L2 contexts. Conventional ear training with a small range of voices may indeed assist early phoneme production, but it would seem that adequate training in perception can only be achieved by exposure to a wide variety of voices, speaking at different rates and in different contexts. Hence, the advantage that an immersion situation provides over an instruction one.

Vocabulary

Acquiring vocabulary in a second language is not just a matter of recognizing a word's form and attributing a core sense (or range of possible senses) to it. Psycholinguistic research has shed light on the information that is stored in an L1 user's mind about each lexical item and on the complex ways in which items are interconnected (Aitchison 2012). This has had important implications for the way L2 vocabulary acquisition is viewed.

Current thinking on *lexical storag*e has had a noticeable impact. It is now widely recognized that learning a word is not a simple 'dictionary' matter of acquiring its pronunciation and a core meaning. The user has to be aware of a word's frequency and, therefore, its likelihood of occurrence. In the long term, they need to construct a set of connections between the following:

- Competitor words: HEAD contrasted with READ; [hed] contrasted with [bed]
- A spoken form and a written form: [hed] versus HEAD
- Synonyms and words in the same lexical set: HEAD, HAND, FOOT (These categories may be specific to the L2.)
- Synonyms and words with overlapping meaning: HEAD, TOP, CHIEF
- Associated grammatical patterns (esp. with verbs): PUT + object + location
- Words with which the target co-occurs regularly (including in fixed expressions): HEAD AND TAIL

Among recent research into L2 lexical storage have been studies of the relationship between the oral and the written forms. The evidence is that, even in instructed situations, the phonological representations of words stored in learners' minds are fewer in number than written ones; the disparity becomes more marked at higher proficiency levels than at lower. Milton and Hopkins (2005) demonstrated that this was even the case with Greek learners, who were starting out with an unfamiliar alphabet.

A parallel line of enquiry (Staehl 2008) investigated a possible relationship between vocabulary knowledge and the ability to employ the four skills. There was a very high correlation between vocabulary level and L2 reading skill and a somewhat lower one with writing. In the case of listening, the correlation was relatively weak, suggesting that avoidance may play a part in this type of exchange.

In recent years, studies of L2 lexical storage have also examined what is sometimes referred to as *vocabulary depth*; i.e. not how large an individual's vocabulary is but how interconnected the items are (Milton 2009: Chapter 7). This line of enquiry is complicated by the fact that it potentially covers a wide range of relationships like those cited. Researchers have mainly chosen to focus on collocational information: i.e. evidence of the extent to which words co-occur or are stored as prefabricated chunks of language. It would appear that L2 users need to achieve a threshold vocabulary of around 3,000 words before such idiomatic patterns really begin to

emerge (McGavigan 2009; Milton 2009: 155). Gyllstad (2007) discovered that learners at a certain stage were better at identifying accurate patterns of co-occurrence (*say a prayer)* than rejecting impossible ones (*tell a prayer*).

Syntactic processing

Psycholinguistic thinking has recently steered the argument away from conventional notions that acquiring syntactic knowledge is rule-driven and focused instead on a view that it may be more serendipitous and largely derived from exposure to natural language. Ellis, who has written widely on this topic in relation to SLA, puts it succinctly (2002): 'the knowledge underlying fluent language is not grammar in the sense of abstract rules or structure but a huge collection of memories of previously experienced utterances'. The claim is that much grammar acquisition results from the language user recognizing frequently occurring formulaic patterns. At a lexical level, these may be multi-word items (*on the way to, more or less*) fixed idioms (*No peace for the wicked*) or pragmatic formulae (*Would you mind if . . .*). But they also frequently record the way in which words co-occur within a phrase or clause. Somebody acquiring English becomes aware that PUT is likely to be followed by a moveable noun plus a location, that a superlative is frequently followed by *of* and a group noun, or that there are clusters, such as *afraid* + *of* + verb-*ing* or *ready* + *to* + verb. In short, acquisition of these patterns is via example rather than precept.

On this analysis, much grammar acquisition can be seen as *emergentist*: its 'rules' being in the form of patterns extrapolated from concrete examples. This may seem a controversial line of argument, but it accords well with what we know about the human brain. As Dąbrowska (2004) points out, our brains are quite slow at processing information but have almost unlimited capacity for storing material including repeated occurrences of a particular phenomenon.

The phenomenon of 'formulaic language' has attracted a great deal of attention in recent years (see e.g. Wray 2002). Commentators have explicitly linked it to L2 acquisition – their conclusion being that SLA professionals should focus less on abstract grammar rules and more on exposing learners to samples of natural speech. This would seem to be an appropriate response to evidence (mentioned earlier) that adult learners acquire grammar much more readily in immersion situations than in instructed ones which invite them to apply abstract generalities.

Language processing in L2

The area of psycholinguistics that has most to contribute to research and practice in SLA seems, curiously, the most neglected. It is the product of many years of rigorous research and trialling; and provides detailed accounts of the cognitive processes that contribute to each of the four language skills. There are several reasons why stronger connections to SLA have not been made. One is an unfortunate lack of communication, with psycholinguistic accounts sometimes proving inaccessible to non-specialists due to heavy use of terminology or cross-reference to abstract principles. Another is the survival of the early notion of 'subskills' (Munby 1978), which influenced a great deal of skills-based practice in the early days of communicative language teaching. The lists of subskills were entirely impressionistic and unsupported by hard evidence, but even to this day, they are sometimes quoted in SLA contexts, despite the availability of empirically based alternatives from psycholinguistics.

What psycholinguistics offers instead is a view of language production and perception as a form of *information processing*. It treats the generation of piece of speech or writing as a

series of processes, in which a basic idea is turned by stages into an utterance or a text. The reverse procedure occurs in relation to the receptive skills, where an utterance or a sentence is turned by degrees into an idea. The different stages identified have enabled psycholinguists to examine closely and rigorously the various mental operations that take place while language is being used. This has shed a great deal of light on the processes in which a first language user has to engage – many of which a second language user has to acquire.

By way of example, Figure 26.1 provides a simplified account of the processes that contribute to the receptive skills. A listener/reader has to decode a signal (either visual or acoustic), then to match what was heard to words in their lexicon, and then to recognize the syntactic patterns that hold the words together. These are described as *lower-level* or *perceptual* processes. At higher (conceptual) levels, the user goes on first to construct a unit of meaning based on the current clause or utterance, and then to integrate that idea into a developing wider discourse structure.

The downward arrows show a progression from smaller to larger units of language and from linguistic information to more abstract representations based upon meaning. These are referred to as bottom-up processes as they progress from smaller units to larger. However, the upward arrows serve to remind us that listening and reading are not purely linear progressions. Listening, even in L1, is a hit-and-miss operation, which often has to draw upon multiple cues as to the words that are present. Here, larger units can influence the recognition of smaller ones in a top-down way. To give two examples – knowledge of the spoken form of a complete word can influence perception at phoneme level, while awareness of the general context can enable a listener to fill gaps in understanding or correct mishearings. In short, listening (and likewise reading) must be recognized to be a highly interactive process.

In a competent first-language listener/reader, perceptual operations are carried out in a way that is highly *automatic* (Anderson 1990) and makes minimal demands upon working memory.

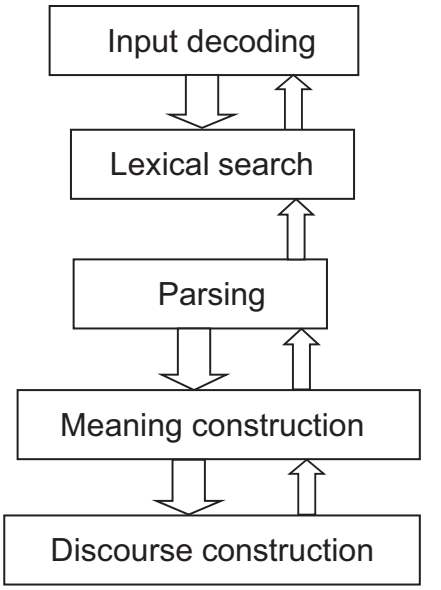


Figure 26.1 A simplified information-processing model of the listening and reading processes (Cutler and Clifton 1999; Field 2008)

This leaves plenty of memory resources free for the complex conceptual tasks of recognizing the relevance of what has just been heard or read and adding it to an elaborate discourse representation of the conversation or text so far.

The concept of automaticity also shapes current cognitive accounts of the challenges faced by a second language listener/reader. At least until an intermediate proficiency level, they are likely to experience difficulty in decoding, lexical search, and syntactic parsing. They thus have to allocate much greater degrees of attention at those levels than they would in their L1 – with the result that they have less working memory left to consider wider issues relating to meaning construction and to the developing pattern of discourse.

This version of events would appear to run counter to a claim sometimes made in SLA circles that early L2 learners are heavily dependent upon information at a 'contextual' level in order to make sense of what they hear or read. However, we should not confuse the listening/reading process that instruction aims to develop in a learner with a *strategy*, a short-term expedient to compensate for limited processing skills. At its most rudimentary, it might consist of little more than making guesses based upon individual lexical items without a clear idea of how they fit into the wider context. See the discussion on L1 reading skills development in Perfetti (1999).

Psycholinguistic models of the four skills serve a number of purposes in relation to the challenges that a learner faces in acquiring an L2. In terms of low-level processes, they highlight different characteristics of the skills that an instructor or materials writer cannot afford to ignore if they wish to understand the challenges faced by a learner. Listening, for example, is extremely demanding because (1) it takes place under pressures of time; (2) the signal is transitory and cannot be checked or consulted other than by appeal to the speaker; (3) phoneme realizations vary hugely, depending on others that adjoin them; (4) the form of words is highly variable in connected speech (*half-past* regularly becomes *huppast*); and (5) syntactic patterns unroll in real time, which means that predictions sometimes have to be corrected as more is heard (e.g. a first understanding of *the lawyer questioned* . . . has to be revised if the next words are . . . *by the judge*).

Psycholinguistic accounts also provide insights into how a competent language user operates at discourse level. In the case of the receptive skills, this entails constructing points of meaning and integrating them into a wider discourse representation. Gernsbacher's (1990) *Structure building framework* has particular relevance to an L2 context. It views a reader as adding incoming information to a current thematic structure if it appears to cohere with what is there. If it does not, the reader creates a new structure. An unskilled reader in L1 or L2 will thus often construct a string of multiple local points that are not connected by their relevance to each other.

Language processing models also have practical applications. They provide SLA practitioners and test designers with a research-based framework that enables them to design descriptors specifying what characterizes behaviour in a skill at different proficiency levels. They can also suggest targets for small-scale remedial practice tasks (Field 2008).

In another context, they have come to be used in determining the validity of second language tests – that is, establishing whether a test does indeed target what it aims to test. The approach adopted (Field 2012, 2013) relates to what is termed *cognitive validity*, a concept that has been widely applied to testing in other areas of education. The principle is simple: a valid test of performance in any domain should not just target knowledge of information; but should also reflect the behaviour for which the candidate is aiming. A test of Medicine should not focus on knowledge alone but should also test the ability to think like a medical practitioner. The relevance to assessing second language performance will be obvious. International tests of

SLA focus largely or wholly on the four skills; can their formats, content, and conventions be shown to elicit behaviour that adequately represents real-world communication?

In practical terms, investigating cognitive validity requires a researcher to address a number of important questions which include (Field 2013: 80):

- How *representative* is the language behaviour elicited by the test in terms of what the test taker would need to deploy in real-world conditions?
- How *comprehensive* is the content of the test in replicating the range of processes associated with competent performance in a given language skill? Do the test items target a range of the processes described earlier?
- How *well calibrated* across proficiency levels is the language behaviour elicited by a test? Does it, for example, take account of the gradual automatization of performance across levels?

Strategy use

A distinction was made earlier between the *processes* underlying the four skills and the kinds of *strategy* that a learner might employ when a process breaks down. There has been considerable interest in strategy use in L2 performance, and since it relates to cognitive and metacognitive processes (O'Malley and Chamot 1990: Chapter 3), it merits a mention. A distinction has been made (Cohen 1998) between those strategies which assist language learning and those which support its use; here we consider the second.

Establishing what is taking place in the mind of an L2 strategy user is not an easy task. Specialists in this area have often put together taxonomies of the types of strategic behaviour that experience has taught them to expect, then sought examples from evidence of learner performance. Most of these taxonomies focus on assembling speech; there has been less attention to strategies associated with interactive listening or with the written skills. There has also been a tendency to focus on how learners deal with gaps in vocabulary.

An early distinction was made between strategies of avoidance, reduction, and achievement. These entailed a speaker recognizing at a speech planning stage that the L2 equivalent of a particular form of words was not known or not easily retrieved. The speech plan would then be adjusted to omit the utterance, to simplify it or to find an alternative way of expressing the target proposition.

Later taxonomies have been more complex. The most detailed (Dornyei and Scott 1997) recognizes direct strategies (e.g. reducing the message, substituting an approximation, code-switching between L1 and L2), interactional strategies (e.g. appeals for help, comprehension checks), and indirect strategies (e.g. playing for time). Taxonomies like these enable researchers to categorise the performance of learners quite methodically, but a theory-led approach of this kind differs rather markedly from the evidence-led approach of much L1 psycholinguistic enquiry.

Qualitative methods are often used to shed light on strategy use. One has been verbal report, but it is not without its limitations. Online reporting is clearly not possible when investigating speaking or listening strategies, and with writing and reading, reporting might be argued to interrupt the natural handling of text. Post hoc verbal reports can be obtained in the case of the oral skills (e.g. through participants defending their answers to comprehension questions), but this requires the ability to reliably recall a response and to provide rationale for it.

An alternative has been to make use of questionnaires, but they can be problematic too, given the danger of false recall. There is also the fact that processes at a cognitive level are

generally highly automatic and therefore not easy for a learner to report. The consequence is that a participant is likely to mention a large proportion of metacognitive processes (e.g. guessing word meaning from context) but to lack awareness of the contribution made by cognitive ones. In addition, a researcher may well need to take account of certain personal factors that contribute to shaping strategy use: not simply the learner's level of proficiency but also issues such as personality (risk-taker vs risk-avoider) and the possible impact of L1.

Despite these reservations, gaining a better understanding of strategy use remains an important goal in SLA research. In terms of reading and writing, it is possible nowadays to make use of eye tracking and key-stroke logging to gain insights into online decision-making. For a wide-ranging collection of papers on L2 strategies, see Cohen and Macaro (2007). The paper by White et al. (2007) reviews issues of methodology.

Summary: psycholinguistics and SLA

This chapter has outlined several of the ways in which psycholinguistic research and theory have informed our understanding of second language acquisition. Originally, they entailed testing certain nativist theories about the influence of first language acquisition – following the logic that, if language was indeed innate, then L2 acquisition might follow a similar path to L1. The hypothesis was not supported. More recently, there has been increasing awareness of the major part played by exposure to the L2 rather than by precepts provided by vocabulary lists or grammar rules. The role of *implicit learning* has been demonstrated. In addition, insights have been achieved by treating language acquisition as acquiring a form of *expertise*. Especially important here has been the notion that a command of basic decoding processes leads to a high degree of *automaticity* in accessing language-level information; this then frees up working memory resources to take full account of larger issues of meaning.

Cognitive studies of the way in which language is stored and retrieved increasingly shape our understanding of how L2 pronunciation, vocabulary, and syntax are acquired. They have favoured an *emergentist* view, where acquisition of a first or second language is supported by exposure to the L2 and by the learner's sensitivity to patterns of co-occurrence. Elsewhere, cognitive models of *language processing* are increasingly used as a means of understanding the various levels at which linguistic and contextual information is handled during second-language use of the four language skills.

Related topics

cognitive linguistics; neurolinguistics in language learning and teaching; psychology of language learning

Note

1 The morpheme (the smallest meaning-bearing component of a language) was featured prominently in these studies, which thus embraced markers of tense, plurality, and so on, alongside whole words.

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27

Neurolinguistics in language learning and teaching

John W. Schwieter and Stefano Rastelli

Introduction

Neurolinguistics is the study of how first (L1) and additional languages are represented and processed in the brain. It is an interdisciplinary field with significant input from neuroscience, linguistics, psychology, speech-language pathology, and biology. Neurolinguistics plays an important role in the field of second language (L2) acquisition, for instance, as our knowledge of language and brain can have critical implications for how languages are taught and, consequently, learned. In this chapter, we focus on how neurolinguistics informs applied linguistics and in particular, L2 teaching and learning. We will begin by foreshadowing the age-old interest in the brain and whether it (or the heart, for instance) was responsible for language. We then look at how our understanding of brain and language has developed over time, has reached a turning point in the 19th century, and has since sharpened as advanced technologies have been introduced. We then turn to discuss current research topics and their contributions to neuroscientific approaches to applied linguistics, along with the many methods that can be used to study language and brain. The chapter concludes by looking at future directions in this research area and by putting forth practical considerations for teaching L2s in formal settings.

Historical perspectives

Humans have demonstrated an enduring interest about the relationship between language and the brain. In ancient Greece, for instance, Alcmaeon of Croton, thought to have been born around 510 BCE, dissected an eye and predicted that the brain was responsible for vision. He also believed that the brain was the organ that was responsible for senses, memory, and thought (Gross 1987). Other Greek philosophers, such as Hippocrates, Valerius Maximus, and Pliny, associated speech impairments to brain injuries (Maruszewski 1975). In around 30 CE, Valerius Maximus and Pliny, moreover, wrote about an individual from Athens who had lost his memory of letters after suffering a head injury, perhaps being the first written reference to the reading impairment known as *alexia*. Other great minds of the era, however, had their own views of the brain: while Plato argued that the brain controlled our actions and thoughts, his student Aristotle believed that its main function was to regulate our body temperature by

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cooling fluids that flow through it. Aristotle also believed that the heart, not the brain, contained the origin of nerves.

The Renaissance witnessed a revitalization in human anatomy that had been suppressed by the Catholic Church, challenging theories from more than a millennia before. During the 16th century, for instance, physician Andreas Vesalius conducted important dissections of the brain which led him to identify neural structures such as the putamen and corpus callosum and to elaborate the function of nerves as the mode of transmitting body movement and sensations. At the same time, Leonardo da Vinci was also dissecting brains and drawing them from various perspectives, paying particular attention to ventricles by modelling them with wax injections. Among Leonardo's many aims in studying the brain was to find the location of *sensus communis* ('common sense') and of the seat of the soul in the brain.

The desire to connect the brain to the soul, thought, and language climaxed in the 17th century. René Descartes argued that the pineal gland was the structure in which the mind interacted with the body. After examining the processes involved in circulating cerebrospinal fluid, he identified the pineal gland as the centre of the soul. On the other hand, Thomas Willis argued that the corpus callosum, which he noted connected the two hemispheres of the brain, was in fact the centre of the soul. Willis also studied in detail the brainstem, cerebellum, and ventricles. Towards the later part of the 17th century, interest grew in aphasic disorders. In 1667 and 1673 Johann Schmidt wrote about two patients who suffered from alexia without agraphia and was perhaps the first to differentiate motor aphasia and paraphasia. Schmidt further noted that the intervening speech treatment had only worked for one of the patients. Peter Rommel in 1683 described a severe case of motor aphasia, which left a patient completely unable to repeat utterances he heard, but his spontaneous speech production and comprehension remained functional.

By the 18th century, a major contribution to brain and language arguably came from Johann Gesner who in 1770 elaborated several forms of aphasia and attributed them to specific impairments that were caused by disturbances in brain functioning. Gesner's description of a patient who had impaired reading in his L1 (German) than his L2 (Latin) brought attention to how various languages may be independent of one another in the brain. Although our understanding of the relationship between language and brain had grown up until the 19th century, and in fact, some scholars argue that almost all clinical forms of aphasia had been elaborated prior to this time (Benton 1964; Benton and Joynt 1960; Brown and Chobor 1992), it is in this era that we witness a turning point. There was a revitalized interest in localizing functions – particularly speech processes – to various brain areas shown by individuals such as Franz Joseph Gall. Gall's phrenological theory held that language was localized in the frontal lobes of the brain and that the geography of the human skull and the bumps on it were the result of brain pressure – and subsequently could be used to assess an individual's character and personality. Gall, along with Spurzheim, a research assistant who eventually became Gall's full-time research partner, identified 26 human faculties which they mapped out on the surface of the cortex (Gall and Spurzheim 1810–1819).

Paul Broca (1861) demonstrated to the Paris Anthropological Society, of which he was also secretary, the dissected brain of his patient Leborgne. Before Leborgne died, based on the speech impairment affecting his speech production, Broca had predicted that there would be a lesion in the left frontal lobe. This prediction turned out to be true. A few years later, Broca (1865) identified this same area as being responsible for speech production. Carl Wernicke (1874) discovered a more posterior area in the temporal and, to some extent, parietal lobes that he attributed to speech comprehension by correlating his patient's premortem ability to speak but inability to comprehend oral speech with a lesion in the posterior division of the superior

temporal convolution of the left hemisphere that was found in the post mortem examination. Many scholars agree that the work by Broca and Wernicke are considered the foundational point for the genesis of neurolinguistics.

Until the invention of electricity, computers, and other advanced technologies, our knowledge about language and brain that accumulated over the centuries, as discussed, relied on autopsies which examined damaged parts of the brain (i.e. lesions) and attempted to relate them to potential language impairments the patient may have exhibited prior to death. Unfortunately, the specific language impairments were not always known when examining the post-mortem brain, and thus, very little, if anything, could be learned about the relationship between brain and language. Complicating things further is that throughout history, individuals who may have shown signs of speech impairments often went without treatment or, worse, were restricted from social interactions out of fear that they would bring shame to their families. Fortunately, today there are better alternatives to studying language and brain which, as we shall see in the section 'Main research methods', include a vast set of sensitive technologies that offer a fine-grain examination of language and (the living) brain. Some of these methods take series of still pictures of the brain, while others dynamically track blood activity or temporally measure electrical activity. Before discussing these innovative methods, we will next look at key issues at the forefront of work being done in neurolinguistics.

Critical issues and topics

The knowledge of brain processes can provide applied linguists with valuable information about how languages are learned, represented, and used, but it can also be the source of misunderstandings and unwarranted expectations. In the interest of space limitations, in this section, we identify four critical research topics that we argue represent realistic synergies between applied linguists and neurolinguists. The first topic concerns the famous nature-versus-nurture dichotomy. This is the debate about whether (and to what extent) language is hardwired in the brain and impermeable to environmental factors or whether its acquisition and usage are shaped directly by speakers' various experiences across the lifespan. A mid-way position is that neurobiology – meant as the whole language network – is necessary but not sufficient to explain how language emerges in individuals. The neurobiological mechanisms dictate the steps of language acquisition in both children and adults, allow fluent and effortless usage of language, and determine its decline and loss due to neurodegenerative diseases, neurovascular accidents, or typical aging. In this very sense, all the processes investigated by applied linguists ultimately require the proper functioning of the brain circuits, and a basic knowledge of their anatomy and roles is therefore important. Sceptics might possibly have a look at video recordings of awake craniotomy with intraoperative neurophysiological language mapping (INLM) that have been recently made available on websites such as www.neurosurgicalatlas.com. Patients undergoing elective brain surgery – whether to treat epilepsy or remove glioma (brain cancer) – abruptly stop speaking or writing as soon as electrodes touch precise sites (around the size of a couple of mm^2) of the cerebral cortex and immediately start speaking or writing as soon as the surgeon removes the electrodes (Chan et al. 2019). Interestingly, during speech arrest, patients' history, age, census, sex, intelligence, individual capacities, and amount and kind of exposure to the language are irrelevant in that they have no modulating effects. What permits or interrupts patients' capacity of speaking is – respectively – the absence or presence of electrical interference with normal neural activity at a surprisingly limited number of cortical sites in both hemispheres. The exact placement of electrodes may vary slightly from brain to brain, but the areas that are mapped are extremely circumscribed and well known by

neurosurgeons. However, not even such direct evidence of the neurological basis of language can rule out the role of a speaker's experience, provided that the latter is seen as a lifelong modifier of the former. In other words, what a speaker does in their life can modify some parts of the brain, at least to some extent. For example, adult speakers' work/professional experience (e.g. professional translators, cab drivers), the place they live (e.g. a bilingual region such as Catalunya), the number of foreign languages they know, whether or not they play musical instruments, and so on have all been found to directly modulate the size of the corpus callosum (a fibre trait that is responsible for inter-hemispheric communication) and the density, length, and efficiency of both grey and white matter in certain brain areas of both hemispheres (Draganski and May 2008; Mechelli et al. 2004; Stein et al. 2012). Nonetheless, even when one considers inter-subjective factors such as the historical, socioeconomic, and cultural conditions that have been proven to affect language change and language variation, one must acknowledge that such factors do not act independently. At any of their developmental, historical, geographical, and socioeconomic points of variation, whatever force is constraining them, languages are always spoken and comprehended by humans because sounds, words, phrases, and sentences are converted immediately and properly into electrochemical signals that are transmitted and read off simultaneously and univocally by neurons that are interconnected and distributed across the axonal projections of a healthy brain. Language exists (i.e. it has a mental representation that can then be overtly articulated and comprehended) because synchronized groups of neurons fire and then rest together in the human brain even when a speaker thinks of or pronounces a single sound.

The second topic of discussion concerns the generalizability of findings of neurolinguistic research. It has been widely stated that every brain is different. Schumann (2004) recaps that 'from the perspective of neurobiology, brains are as different as faces' (p. 2). That view is of course correct, provided that it is taken as a metaphor of complexity, not as a lack of confidence in the scientific investigation of how language might be represented in the human brain. After all, although it is true that all faces are different, they are all made of the same elements: one nose (not two), two lips (not three), one chin, eyebrows, two pupils, and so on. Moreover, DNA sequences that make every biological organism unique are seemingly infinite combinations of just four nucleotides (adenine, guanine, cytosine, and thymine). Likewise, an individual's brain represents a uniquely different arrangement of identical brain structures and connections among such structures. In some important sense thus, neurolinguistics – like genomics – is not the study of the idealized unique brain for language, but the study of the neurobiological limits to the variability of the language learning brain. Neurolinguists working in L2 acquisition have already dealt with variability in learners' brain for nearly two decades. For example, studies have shown that both advanced learners and native speakers – when encountering morphosyntactic violations in language stimuli during the recording of event-related potentials (ERPs) – can elicit different electrophysiological responses (the famous LAN, N400 or P600 brainwaves or 'components'), depending on factors such as gender, proficiency, L1, and handedness (Tanner 2013). Hartshorne and Ullman (2006) found that females are better than males at retrieving English irregular past tense forms compared to regular verbs. This does not mean that females and males have different brains nor that it is impossible to make predictions about how language is represented in the brain, but rather that there could be differences in brain organization that are affected by peaks and dips of hormones in individuals.

The third research topic concerns brain plasticity and to what extent, if any, the brain can adapt and learn new things across the lifespan. Nowadays there is consensus that an adult's brain is partially (not completely) adaptive, that is, capable of responding with anatomical and functional changes to environmental challenges 'because of the plasticity potential of the

underlying brain circuitry elements necessary for these abilities' (Uylings 2006: 60). Indeed, learning from experience does not seem to require long-distance axon rewiring or synaptic pruning – two processes which are exclusive of childhood – but only local dendritic and synaptic alterations – with increases or decreases of grey matter thickness – and more efficient fibre (white matter) connections across adjacent areas. These latter modifications that begin in childhood do not seem to stop in adulthood. Some structural and functional changes occurring in an adult's brain may arise from the experience of learning and speaking additional languages. In a seminal study, Coggins et al. (2004) examined midsagittal corpus callosum variability in 12 bilinguals and compared it to 7 monolinguals by using magnetic resonance imaging (MRI). Significant differences were found in the size of the anterior midbody of the corpus callosum, which was larger in bilinguals. This was attributed to either an increase in axon number (the structure of the cell that transmit the signal) or to an increase in myelination (a substance that increases the speed of the signal). It appears that when adults learn another language, the processing demands of multiple language organization require an increase in communication and higher signal-conduction speed from symmetric cortical regions throughout the corpus callosum.

The fourth topic of discussion in contemporary neurolinguistics concerns the advantages of early bilingualism for brain functioning in adulthood. Early bilingualism – a linguistic situation in which an individual is exposed to more than one language from birth – changes a child's brain organization, and some of these changes persist over the speaker's lifespan. Bilingual children at the age of four to eight years already outperform their monolingual peers in executive and inhibitory control tasks, such as drawing a continuous path in sequential order through numbers arranged casually on a page (Bialystok 2010). Moreover, early exposure to two languages also causes bilingual adults to demonstrate and maintain a processing advantage in tasks that require attentional control to ignore or inhibit misleading cues. For instance, when solving non-linguistic cognitive problems, adult bilinguals are said to rely on already well-trained neural resources (left prefrontal cortex and anterior cingulate cortex [ACC]) (Bialystok et al. 2005). By using a combination of functional MRI (fMRI) and voxel-based morphometry (VBM) techniques, Abutalebi et al. (2012) found that adult bilinguals especially use the dorsal ACC – a structure connected to domain-general executive control functions – more efficiently (with less effort) than monolinguals when facing conflicts and choices among competing cues. Results would indicate that early learning and lifelong practice of two languages impacts human neocortical development in infants, and that the bilingual brain adapts better to resolving cognitive conflicts in domain-general cognitive tasks across the entire lifespan.

Current contributions and research

Possibly the largest contribution of neurolinguistics to applied linguistics concerns the elaboration of the role of long-term memory circuits in L2 acquisition and instruction (see Rastelli 2018 for a summary). This line of enquiry investigates whether and how L2 acquisition and different teaching approaches may change both the anatomy and functioning of an adult learner's brain areas critical for language even in the short term. The theoretical background that links together neurolinguistics, L2 acquisition, and foreign language teaching research was formulated during the mid-1990s with the introduction of the declarative-procedural model among psycholinguists and acquisitional linguists (Ullman and Lovelett 2018). According to this model, the learning, representation, and storage of distinct aspects of L1s and L2s are connected to two different memory circuits in the brain. The declarative memory system is the relational memory of facts and events. It is an associative memory system that underlies

aspects of the mental lexicon and of chunk learning and is subserved by medial temporal lobe regions (hippocampal regions, entorhinal and perirhinal cortices, parahippocampal cortex) and parietotemporal neocortical regions. Procedural memory, in contrast, supervises learned behaviours, such as stimulus-response habits. It promotes the learning and control of cognitive and motor skills which involve automatic sequences and procedures. Moreover, procedural memory is assumed to underlie some important aspects of the mental grammar, such as the combinatorial rules of simple past formation in English (e.g. *walk* + *-ed* = *walked*). The procedural memory system is subserved by a network of different subcortical and neocortical brain structures: the basal ganglia (especially the caudate nucleus, putamen, and globus pallidus) and the frontal cortex (especially the supplementary motor area and the posterior region of Broca's area). Ullman (2004, 2005) and Paradis (2004, 2009) – from distinct angles – began to systematically use the distinction between procedural and declarative memory circuits to refer to the different levels at which the items of the L2 can be learned, represented, and processed over time. These authors posited that part of the language (both L1s and L2s) is memorized as a whole, and the other part is computed by combinatorial rules.

The first experimental studies partly utilizing the declarative procedural model and making explicit connections between brain data and L2 teaching can be traced back to the work of Osterhout et al. (2006). In those studies, L2 teaching correlated with electrophysiological responses and with changes in the density of white matter in the brain. These results were interpreted as cues of environmental adaptation directly following classroom-based L2 instruction. According to the researchers, during the early stages of the acquisition of verb morphology, L2 learners are sensitive only to statistical rules (e.g. transition probabilities) that keep together whole-word sequences (chunks and formulas). Grammatical violations at this stage elicit mainly N400-like brainwaves, which the authors associated with declarative memory circuits especially in the left superior temporal gyrus. After four months of instruction, with increases in L2 proficiency, the same learners may go beyond statistically based patterns in the input and may use productive, combinatorial rules to process the same phenomena. Grammatical violations at this later proficiency stage elicit mainly P600-like brainwaves that the authors linked to procedural memory circuits. It was also observed that L2 learners with high levels of proficiency might show neural profiles (both electrophysiological and relative to brain-oxygenation level) that significantly overlap with those of native speakers, regardless of the age of acquisition (Steinhauer 2014). It is evident that language training and classroom teaching are key factors for declarative knowledge of grammatical forms eventually being sided by the procedural knowledge of the same forms through practice (Ullman 2005: 160). This does not mean that declarative knowledge is transformed into procedural knowledge but only that lexical forms and constructions stored in the declarative memory may provide a database of productive schemas from which grammatical rules 'can gradually and implicitly be abstracted by the procedural memory system' (Ullman 2004: 247). Classroom practice can in fact indirectly increase performance in procedural memory and 'in some cases explicit knowledge of the rules themselves may help guide processing, perhaps enhancing the procedural rule acquisition' (Ullman 2004: 247).

Main research methods

Unlike the times of Broca, Wernicke, and others before them, today we have advanced technology that allows us to examine the living brain in order to identify abnormalities or damage and to study how it deals with language. Many of the main research methods that examine language in the brain overlap with those used in cognitive linguistics (see Winter and Perek 2024) and

psycholinguistics (see Field 2024). However, the methods in neurolinguistics represent a direct link to understanding the brain and are unique in that they examine language issues among individuals with brain damage and measure neural activity – both in healthy and damaged brains – through imaging techniques of brain activation in real time. In neurolinguistics, the main research methods can be organized into whether they produce visualizations of brain activity or whether they measure the electrophysiological activity of the brain or the effects of cortical stimulation.

Methods used to visualize the brain and its activity

X-rays were discovered in 1895 by Wilhelm Roentgen but it was not until 1971, when Godfrey Hounsfield invented the computed axial tomography (CAT or CT) scan, and a year later, when he scanned the first human head, that CT scanning became commonly used to study the brain. CT scanning involves taking a series of X-rays of the head from various directions. A computer then converts this data into several cross sections of the brain that show density variations in brain tissue. These black-and-white cross-sectional pictures assist the diagnosis of structural lesions inside the brain (Bhattacharyya 2016) and the effects that their size and location had on language. The denser the lesion is, the whiter it will appear in the scan. Lesions located in the areas identified by Broca and Wernicke commonly create impairments in language production and comprehension, respectively.

The drawback of CT scanning is that it does not provide dynamic images of the brain, nor is it able to depict the activity of the brain while individuals being scanned are performing tasks. When using positron emission tomography (PET), an individual is injected with harmless radioactive positron isotopes, often tagged with glucose or water molecules. As the isotopes decay, positrons are released, collide with electrons, and consequently send gamma ray particles in opposite directions. The PET scanner is sensitive to the gamma rays and determines neural activation patterns based on where the rays came from in the brain in areas of about 5–10 mm^3. The scans generated are multi-coloured, two- or three-dimensional images. Although PET scanning usually must be run twice to have both control and experimental conditions, an advantage to using PET is that individuals do not need to remain as still as in other scanning methods. Consequently, their articulatory actions (e.g. jaw and lip movements) do not disrupt the accuracy of the PET scan. Single-photon emission computed tomography (SPECT) is similar to PET but measures cerebral blood flow from a single gamma ray. The traces of gamma rays detected in SPECT have much longer half-lives (up to six hours) compared to radiotracers (up to two hours) detected in PET.

A less invasive alternative to PET and SPECT, and one which also provides a much higher resolution of the brain, is magnetic resonance imaging (MRI). MRI tracts the magnetic activity of hydrogen in the blood. In neurolinguistics, a functional MRI (fMRI) is often used to detect the changes in regional blood-oxygen levels (i.e. blood-oxygen-level-dependent [BOLD] signal) that emerge when doing things such as naming pictures or performing lexical decisions. The fMRI reveals dynamic activation patterns that are so spatially accurate that areas of activation can be distinguished in areas of 3 mm^3 (and even less in more powerful machines). The activity can be recorded to produce 'movies' of brain activity changes that accompany linguistic behaviour and/or stimuli. fMRI scanning is preferred over PET not only because it is less invasive and less expensive and produces higher resolution but also because it can produce images of neural activity about every second, whereas PET may take 40 seconds longer to produce. Researchers have also begun using diffusion tensor imaging (DTI) – another MRI technique – to measure the restricted diffusion of water in brain tissue, allowing for identification of neural pathways that connect different brain areas.

While there are many benefits of using fMRI to study language and brain, it is more sensitive to articulatory movements that can significantly interfere with data. Furthermore, although fMRI offers very high spatial resolution, its temporal resolution of around 2–3 seconds is much slower than neural events that occur within milliseconds (Gaudet 2020). Particularly in the case of auditory and language processing, measuring brain activity at a higher temporal resolution can be very beneficial (Skeide and Friederici 2016). As such, many researchers utilize research methods that track electrical activity of the brain as they can offer temporal resolutions of < 1 millisecond. We will discuss these techniques next.

Methods used to measure electrical activity and magnetic fields in the brain

Other methods commonly used in neurolinguistic research measure tiny electrical charges that are produced by the brain. One of the most used techniques among these methods is the electroencephalogram (EEG). The EEG includes small metal discs with electrodes that are placed at various locations across a participant's scalp. Typically, EEG systems of 64 electrodes are used, although recent research has shown that using systems of 32 electrodes or fewer may be sufficient (Montoya-Martínez et al. 2021) in examining the brainwaves that are produced by the EEG – as long as the electrodes are placed in optimal places. In many speech studies on the brain, repeated stimuli are used to gather a basic brain waveform which can then be compared to induced language-related events that occur in response to stimuli. These critical trials are depicted by event-related potentials (ERPs) that are represented as graphs of negative and positive peaks of amplitude (in microvolts). There are several specific components (i.e. peaks at particular points in time after stimulus onset) of the ERP that correlate to language processing and thus, are of interest to neurolinguists. For instance, the N400 – a negative-going peak that occurs around 400 ms after stimulus – reflects semantic processing and is sensitive to lexico-semantic, sentence-level, and discourse-level manipulations (Wlotko and Federmeier 2013). The P600 – a positive-going peak around 600 ms after stimulus – can be observed when unexpected syntactic errors in speech or reading comprehension are encountered (Osterhout and Holcomb 1992). In addition to the EEG, researchers may also use functional near-infrared spectroscopy (fNIRS), a technology which uses near-infrared light to measure changes both in oxy- and deoxyhaemoglobin concentration. Both EEG and fNIRS are easily portable but they can only measure brain activity near the cortical surface.

While the EEG measures the electric currents created by the firing of neurons, magnetoencephalography (MEG) measures the magnetic fields that are produced by these currents. MEG measures activity using superconducting quantum interference devices (SQUIDs) or spin exchange relaxation-free (SEF) magnetometers that, like EEG, offer very high temporal but low spatial resolution. Nonetheless, because magnetic fields produced by neural activity are less distorted by surrounding tissue found in the skull and scalp, MEG provides better spatial resolution than EEG. Another benefit of MEG is that it is a much more direct measurement of brain activity that can be used in single case studies, whereas EEG requires exposure to multiple repetitions of stimuli to calculate average brainwaves.

Finally, transcranial magnetic stimulation (TMS) is a non-invasive method of temporarily stimulating or interrupting brain activity in isolated locations from outside the head. In TMS, a magnetic coil is used as an electrical conductor to change the magnetic field at a specific area of the brain. Important for neurolinguistics is that the magnetic impulses that are sent through the coil allow researchers to momentarily 'turn off' an area of the brain and thus be able to correlate specific language functions with cortical areas. In clinical psychology, TMS has been

used in brain stimulation therapy by applying repetitive, high-frequency TMS (rTMS) to the dorsolateral prefrontal cortex area, thought to be responsible for mood control (see Rizvi and Khan 2019).

Recommendations for practice

Placing *teaching* and *neurolinguistics* in the same title of a chapter – in addition to a superficial interpretation of the studies discussed – may suggest that we have come to a point when L2 instruction can benefit directly from discoveries about the brain. This false impression is reinforced by the fact that the marriage between language teaching and neuroscience has been established for more than 30 years. In late 2021, a Google search for 'brain-based learning' produced more than 1.1 billion entries, whereas in 2016, it had a little over 18 million. Among such entries, almost 90% refer to the learning of an L2 in adulthood. What has been addressed and accepted for so long is the existence of language teaching approaches that suit the way the language-learning brain works. For example, many prospective L2 educators attending teaching training programs at university level in Europe and the United States are taught to conform to so-called 'brain-compatible methods', although neurolinguists have made repeated attempts to discourage the growth of this neuromyth (Beretta 2009).

Put simply, there is no such thing as brain-compatible teaching methods which have been advertised by language learning websites that are for-profit. Moreover, it will probably take decades before neurolinguistics can inform language teaching methodologies, for at least three reasons. First, there are still so many classroom-related and SLA factors – such as proficiency, motivation, and 'explicit' versus 'implicit' teaching – that are very difficult or even impossible to control for in an experimental study. Second, little is known about the causal relation (not just about the correlation) between those factors and the patterns of brain adaptation in adulthood that were found in the aforementioned experiments. Third, the methodology adopted in those studies can hardly account for individual learner differences. Many of the studies we discussed use an electrophysiological measure that although has many advantages, also has inherent, well-known limitations. For instance, in ERP studies, learners' individual differences are eclipsed by the averaging procedure. This procedure is necessary to increase the signal-to-noise ratio that allows for meaningful measurement of patterns in microvolt potentials (Luck and Kappenman 2013). These shortcomings become more important when L2 classes are involved in an experimental design that requires between-group differences to be stronger than between-subject ones in order to say something about the effect of teaching. L2 teaching research should not abandon the examination of individual differences and how they affect L2 acquisition. There is much work to be done before neurolinguistic research can directly inform L2 teaching. Neurolinguists should consider the advantages of collaboration with developmental and applied linguists as the whole scientific enterprise would benefit in the long term and a synergetic development for both fields would most certainly blossom.

Future directions

An important direction for future collaboration between neurolinguistics and applied linguistics concerns the relationship between bilingualism, L2 learning, and the aging brain. According to the United Nations (2019), 'the world's population is growing older due to increasing life expectancy and falling fertility levels, and the number of countries experiencing a reduction in population size is growing' (para. 3). By 2050, it is estimated that

the number of people over the age of 60 will be triple than in 2019. Cognitive decline is inevitable with aging, but the rate and severity of that decline is highly variable, partly depending also on individuals' lifestyles. Bilingualism – whether early or late – 'has the potential to shape cognitive change across the lifespan, possibly modifying its decline with aging' (Sullivan and Bialystok 2017: 2). Although the evidence available is varied and sometimes conflicting, two promising lines of research have intersected especially over the last two decades. The first one is the observation that cognitive leisure activities can moderate the risk of Alzheimer's disease. The second one is the idea that lifelong bilingualism preserves a healthy brain's functions and may delay the onset of dementia by years. A perhaps less investigated area of inquiry concerns the cognitive factors that may predict successful acquisition by older L2 learners. Mackey and Sachs (2012) found that older L2 learners with higher working memory on a listening-span task in the L1 were better at carrying out communicative tasks in the L2 with native speakers compared to older learners with lower working memory scores. The relationship between working memory and language, particularly in L2 acquisition, is an ongoing area of research with multiple exploratory pathways (for an overview of the relationship between language and working memory, see Schwieter and Wen 2022). This demonstrates how applied linguists can contribute to the study of the aging brain. Applied linguists often deal with complex developmental and teaching-related variables that neurolinguists must consider when planning their experiments.

Related topics

clinical linguistics; cognitive linguistics; second language acquisition; language teaching and learning; language disorders; psycholinguistics; neural networks; computational brain modelling/simulation

Further reading

Andrews, E. (2014) *Neuroscience and Multilingualism*, Cambridge: Cambridge University Press. (This book offers a comprehensive analysis of theories and experimental designs in the neuroscience of multilingualism. New data and a neuroscientific model for understanding multilingualism are put forth.)

Costa, A. (2019) *The Bilingual Brain: And What It Tells Us About the Science of Language* (translated by J. W. Schwieter), London: Allen Lane/Penguin Random House. (Original work published in 2017). (This book draws on decades of data exploring the following questions: How do we learn languages? Why can languages be forgotten? And how do two languages co-exist in the same brain?)

De Groot, A. and Hagoort, P. (2017) *Research Methods in Psycholinguistics and the Neurobiology of Language*, Oxford: Wiley-Blackwell. (This book explores the methods and technologies employed in research on language acquisition and processing and the brain. It is an excellent resource for students and early researchers in the field as it examines the strengths and weaknesses of various experimental methods.)

Schütze, U. (2017) *Language Learning and the Brain: Lexical Processing in Second Language Acquisition*, Cambridge: Cambridge University Press. (This book provides an overview of language processing in the brain, with a special emphasis on word learning. It discusses important topics such as memory, language, and the brain; synaptic connections; cognitive load; and the implications for learning and teaching.)

Schwieter, J. W. (ed.) (2019) *The Handbook of the Neuroscience of Multilingualism*, Oxford: Wiley-Blackwell. (This book offers a collection of works from globally recognized scholars in neuroscience, psycholinguistics, neurobiology, psychology, and language acquisition. Its coverage ranges from significant theories and methods, language impairments and disorders, to neural representations, functions, and processes of the multilingual brain.)

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Psychology of language learning

Personality, emotion, and motivation

Jean-Marc Dewaele

Introduction

Anyone working on overviews of certain research areas needs to resist the temptation of using the benefit of hindsight. Indeed, it is easy to point out what researchers did wrong or what cul-de-sac they were entering, from the comfort of an easy chair at some point in the future when the dust has long settled. Of course, hindsight can also highlight the fledgling developments presented in early papers that turned out to be ground-breaking. It is inevitable that as we weigh past research, including our own, we wonder what factors contributed to its relative success or lack of it. Researchers fervently hope when they submit a piece of research that it contains some grain of theoretical, epistemological, or methodological innovation, and that reviewers and editors may be swayed, and that the contribution may ultimately appear in print. However, the judgement of history really comes ten or twenty years later when citation indexes show how influential a particular study has been in the field. Authors may console themselves that their sometimes truly original papers remain unknown because they were published in obscure journals or edited books, or the title was too cumbersome, or the abstract was not clear enough, or the paper did not highlight the originality enough, or the paper was not written in English and therefore remained out of reach of researchers who were unable to read it. Other reasons could be that the authors were relatively isolated in the research community or lacked a good strategy to bring their area of research to the attention of colleagues through follow-up co-authored papers with established researchers, panels at conferences, invited lectures, special issues, edited volumes, and maybe the creation of an international organization with the aim of bringing colleagues with common interests together at regular intervals. Harsh rejections by editors or conference organisers may also have extinguished the initial enthusiasm of less resilient researchers. What I just described probably applies to academia as a whole, it certainly happened in the area of the psychology of language learning in which I acted both as a contributor and as a reviewer, so I will attempt to present a coherent – but, by definition, incomplete – picture of an area of research that took some time to develop but that has grown exponentially in the past decade, as shown also by the creation of the International Association for the Psychology of Language Learning in 2016.

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Historical perspectives

Our understanding of the content and scope of the psychology of language learning has evolved dramatically since the early days when applied linguists Naiman, Fröhlich, Stern, and Todesco at the prestigious Ontario Institute for Studies in Education (OISE), University of Toronto, used the Eysenck Personality Inventory in their influential (1978) book to establish the psychological profile of 'good language learners', in addition to their cognitive and motivational characteristics, and ended up being very surprised with the meagre results on the link between personality traits and learner performance.

A limited understanding of psychological theory, epistemology, methodology, and statistical skills has hampered applied linguists' search for personality variables that could be linked to FL learners' performance and progress. Applied linguists who ventured in this direction and got a little bit lost should be forgiven, because the vastness of the field of personality psychology, the internal debates about theory, epistemology, and methodology, and the use of advanced tools and statistics represented serious obstacles to applied linguists looking for simple instruments, hypotheses, and explanations for psychological phenomena they observed among FL learners. As Dörnyei and Ryan (2015) pointed out, applied linguists venturing out in psychological research face 'a plethora of personality factors that sometimes differ only in label while referring to nearly the same thing, or – which can be more confusing – have the same label while measuring different things' (p. 17). Armed with personality questionnaires, applied linguists like Naiman et al. (1978) went fishing, naively confident in their expectation that the haul would be significant. As they came home with little to show, they decided to blame the instrument rather than their hypotheses, the soundness of the research design and the interpretation of the findings. Their lack of success reverberated for years in the world of applied linguistics (Dewaele and Furnham 1999). It is important to point out that other applied linguists, like Zoltan Dörnyei, have managed to successfully draw on well-established psychological theories and methods to develop original models on motivation in FL learning.

The belief that 'good language learners' had to have unique personality profile was still alive and kicking 40 years later despite growing criticism (Norton and Toohey 2001). Ehrman (2008) for example, selected 62 FL learners with the highest scores in an oral interview test out of a total of 3,000 learners. She argued that these 62 learners represent 'the true elite of good language learners' (p. 61). The 62 participants filled out the Myers-Briggs Type Indicator (MBTI) that measures extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perceiving – combining into 16 possible four-letter types. A series of crosstabs analyses allowed her to determine which personality type was most frequent. This turned out to be INTJ types (introverted, intuitive, thinking, judging) (p. 64). She made the rather sweeping conclusion that 'the best language learners tend to have introverted personalities, a finding which runs contrary to much of the literature, and, even, to pedagogical intuition. The best learners are intuitive and they are logical and precise thinkers who are able to exercise judgment' (Ehrman 2008: 70). Intuition and thinking corresponds to the personality trait *conscientiousness* (see also next section). Learners with high scores on this dimension are assiduous and work hard to progress in the FL. They may deploy long-term metacognitive strategies (goal-setting, self-assessment, self-monitoring) and pay attention to correct use of vocabulary, idiomatic expressions, and grammar rules. Ehrman (2008) also pointed out that intuition is remarkably similar to the personality trait *openness to experience*. Learners who score high on this dimension 'concentrate on meaning, possibilities, and usually accept constant change' (p. 66).

I have argued in previous reviews of the literature on the role of personality traits in FL learning that whenever a significant relationship is identified between a personality trait and

some measure of FL performance, the effect sizes are so small that one might wonder whether it worth listing them (Dewaele 2009, 2012, 2013, 2022). The pedagogical implications of such studies are also limited since higher-order personality traits are relatively stable (see next section), which means teachers cannot make their learners more conscientious or extravert.

With hindsight, one could argue that research on the good language learner that focused of personality traits was overly simplistic. It assumed that learners could be neatly categorized according to their scores on five personality traits and that these were able to predict the amazingly complex process of FL acquisition and performance. Metaphorically, once could say that researchers were like fishers using huge nets to understand the ecological system at the bottom of the sea. They landed some fish, which they described pretty well, but they failed to understand that the fish were part of a complex system with many interacting variables. The size and quantity of the fish depended on the presence of crustaceans, leeches, worms, zooplankton, algae, smaller fish, and predators; clean water, water temperature, and acidity; and the activity of fishers trying to catch them. Applied linguists today are much more conscious that the language learner and user represents a complex dynamic system (Dörnyei et al. 2015). The learner system exists simultaneously at different levels: the individual (micro-)level, nested within a complex dynamic system at meso-level (classroom dynamics shaped by peers, teacher, curriculum, teaching material, type of institution) and macro-level (group-level attitudes towards the FL shared by family and friends, as well as more general political and historical context). In other words, an INTJ type of learner who should be successful does not operate in a vacuum. It means that the potential advantage could be neutralized at any level: the learner may decide to focus on mathematics rather than the FL, disruptive peers might spoil the fun in the FL class, a boring teacher might demotivate the students, a budget cut means the school may be forced to employ a FL teacher who barely knows the language, a national referendum may lead to isolationism and a drop of interest in FLs, or political relations with the country where the FL is used may deteriorate to the point of war at which point any user of the FL is viewed with suspicion. All these factors easily override the learner's personality profile that looked like a perfect runway for take-off.

Critical issues and topics

Personality traits

Psychologists suggest that personality traits 'summarize a person's typical behavior' (Pervin and Cervone 2010: 229) but can also include thought and emotion. Personality traits are assumed to remain quite stable over a lifetime in contrast with states, which are more transitory and context-dependent. Trait psychologists broadly agree on a hierarchical organization of personality traits with five broad, orthogonal dimensions at the apex (the so-called 'higher-order' Big Five dimensions: extraversion vs introversion, neuroticism vs emotional stability, conscientiousness vs negligence, agreeableness vs disagreeableness, and openness-to-experience/intellect vs unsophisticated). These Big Five dimensions consist of a number of facets and a larger number of 'lower-order' personality traits, such as trait emotional intelligence (TEI), conceptualized 'as a constellation of emotional perceptions, rather than an IQ-type or competency variable. Trait EI is currently the only definition that recognizes the inherent subjectivity of emotional experience' (Petrides 2017: 2). These lower-order personality traits are often correlated with Big Five traits but also explain unique variance (Pervin and Cervone 2010). The facets of extraversion, for example, are activity, assertiveness, excitement-seeking,

gregariousness, positive emotion, and warmth (ibid.). TEI is positively correlated with emotional stability, extraversion, conscientiousness, agreeableness, and openness (Petrides et al. 2010). TEI consists itself of four facets which themselves have subscales and two independent facets: (1) well-being (self-esteem, trait happiness, trait optimism), (2) self-control (emotion control, stress management, impulse control), (3) emotionality (emotion perception – self and others, emotion expression, relationships, trait empathy), (4) sociability (social awareness, emotion management [others], assertiveness), (5) adaptability, and (6) self-motivation. A study by Dewaele et al. (2008) revealed that TEI was negatively correlated with anxiety of multilinguals in their different languages, which was attributed to greater confidence of high TEI language users to judge the emotional state of their interlocutor and to adapt the speech if necessary.

The Big Five personality traits and TEI are universal; in other words, the same dimensions exist around the world, independent of language and culture (Pervin and Cervone 2010).

Emotion in psychology

Fehr and Russell (1984) quipped, 'Everyone knows what an emotion is, until one is asked to give a definition. Then, it seems, no one knows' (p. 464). The diversity of definitions of emotion within psychology lies well outside the scope of the present review. The conceptualization of emotion that is most useful to applied linguistics is undoubtedly the one developed in the psychological constructionist approach which regards an emotion as a construction of the mind shaped in the course of socialization and based on domain-general perceptions of the environment and of physiological states (Russell 2003). These constructionist researchers reject the idea of universal emotions. The only universal aspect of emotion, according to (Russell 2003), is core affect, or the conscious experience of the combination of valence – that is, how pleasant or unpleasant one is feeling – and arousal – that is, how activated/agitated or calm one is feeling. These two dimensions are assumed to be the most elemental and basic aspects of any emotion.

Following the avenue of the psychological constructionist approach (Barrett 2017) developed the theory of constructed emotion in which she integrates ideas and concepts from neurology, linguistics, anthropology, and psychology. For Barrett, emotions are domain-general constructions of the brain, based on perceptions of the environment, on perceptions of the body state, and on previous knowledge, which is organized around concepts. She points out that emotions do not have unique 'fingerprints'. Indeed, a smile is not necessarily an indication of happiness, and a scowl is not necessarily an indication of anger and people may sometimes be unsure about the emotion they are experiencing.

Academic emotions in educational psychology

Some applied linguists have also borrowed conceptualizations and instruments from educational psychology, more specifically Pekrun's control-value theory of achievement emotion (Pekrun 2006; Shao et al. 2019). These achievement emotions are shared by students in a wide variety of courses in various education contexts. They are organized along three dimensions: object focus (the activity itself versus the outcome), valence (positive versus negative), and activation (deactivation versus activation). The authors thus conceptualize academic enjoyment as an activity-related, positive, and activating achievement emotion arising from the learning activities. Anxiety is conceptualized as arising from the uncontrollability or uncertainty over

the attainment of success or the prevention of failure. Boredom is defined as a negative deactivating activity-related achievement emotion.

Emotion in applied linguistics

Interest in emotions in applied linguistics has never been entirely absent but it occupied (and still occupies) a marginal position. The existence of emotions was not exactly denied but they were viewed with a certain amount of suspicion. In the modernist tradition, cognitive factors were considered to be the main drivers of acquisition and performance (Dörnyei and Ryan 2015; Pavlenko 2013; Prior 2019). As such, 'emotions are the elephants in the room – poorly studied, poorly understood, seen as inferior to rational thought' (Swain 2013: 195). Prior (2019) has called to 'open up this confined and crowded room and explore other spaces of language and emotional life' (p. 525). Combining the 'elephant in the room' metaphor with the adynaton 'when pigs fly' (i.e. something that will never happen), Dewaele (2019) proclaimed that we have entered the period where elephants have lifted off.

FL anxiety was the first emotional variable in applied linguistic research to be investigated systematically. Gardner (1985) included language anxiety in his socio-educational model. In a pioneering paper, Horwitz et al. (1986) developed the concept of foreign language classroom anxiety (FLCA) and proposed a reliable 33-item instrument to measure it. Their aim was to prove that FLCA was a unique, complex negative emotion experienced by FL learners, independent from general anxiety. Horwitz (2017) argued that FLCA arose from learners' 'distress at their inability to be themselves and to connect authentically with other people through the limitation of the new language' (p. 41). This definition suggests that the physiological symptoms of FLCA arise from an identity issue – the inability to project an image of the self in the FL that corresponds to that in the L1 and the resulting unexpected and frustrating difficulty in establishing social connections with interlocutors.

Motivation researchers' explicit focus on negative emotions meant that they paid less attention to positive emotions. Gardner (1985) did acknowledge that positive emotions played a role in FL learning, but he did not create explicitly positive dimensions. Items reflecting positive emotions were embedded in dimensions such as learners' attitudes toward the learning situation, integrativeness, and motivation.

Similarly, negative emotions played a more prominent role than positive emotions in Dörnyei's (2009) L2 motivational self system, with items about anxiety in using the FL inside and outside of class. Only the third dimension, L2 learning experience, contained items about interest, enjoyment, and excitement in the FL class. It was a dimension that reflected traditional motivation research and was 'conceptualised at a different level from the two self-guides' (Dörnyei (2009: 29). This dimension remained on the periphery in the field as researchers focused on the ideal L2 self and ought-to L2 self. More recently, Dörnyei (2020) has accepted that classroom emotions are powerful de/motivators in FL learning. He argues that emotions are not linked to direct goal-directed motivated behaviour but rather to action tendencies. As such emotions play a vital supporting role and 'positive emotions make a significant contribution to a variety of L2 motivational processes' (p. 122).

The introduction of positive psychology (PP) in applied linguistics through the work of MacIntyre and Gregersen (2012) caused a surge of interest in the role of both positive and negative emotions of FL learning (Dewaele et al. 2019; Dewaele and Li 2020; Shao et al. 2020). The fundamental aim of PP was to broaden psychologists' horizon and to move away from an overwhelming focus on negative issues. Seligman and Csikszentmihalyi (2000) wanted to

study how 'normal' people live with the goal of helping them to thrive and flourish. The authors insisted that positive psychologists do not look at the world through a rosy lens but want a holistic view, based on solid research:

> Positive psychology does not rely on wishful thinking, faith, self-deception, fads, or hand waving; it tries to adapt what is best in the scientific method to the unique problems that human behavior presents to those who wish to understand it in all its complexity.
>
> *(Seligman and Csikszentmihalyi 2000: 7)*

PP resonated with applied linguists who felt that classroom emotion research had been too exclusively focused on anxiety and on ways to combat it in the classroom or to neutralize its negative effects (Dewaele and MacIntyre 2016; MacIntyre et al. 2016, 2019).

MacIntyre and Gregersen (2012) presented Fredrickson's (2001) broaden-and-build theory and adapted it to the FL learning context. The main argument is that learners' positive emotions can counter and overcome the lingering effects of negative emotions in the classroom. The beneficial effects of learners' positive emotions run much deeper than the superficial experience of fleeting pleasant feelings. A learner who experiences positive emotions will acclimatize better in the classroom, will notice more things, and will absorb more language input. In contrast, learners in the grip of negative emotions will feel under threat, which will lead them to retrench and stay silent; hence, their focus will narrow, and more information is likely to pass them by. As Horwitz (2017) had already pointed out, FL anxiety does not emerge full formed in the learner. It is the result of repeated negative classroom emotions. A repeated state FL anxiety might thus become more permanent and trait-like over time, gradually undermining learners' self-image and self-confidence and extinguishing their willingness to communicate. MacIntyre and Gregersen (2012) pointed out that positive emotions, on the other hand, boost learners' well-being, resilience, and hardiness, which has social consequences in the classroom as it encourages them to explore and take linguistic risks without fear of punishment or ridicule, which in turn can strengthen social cohesion with peers and teacher and create group solidarity in the pursuit of FL acquisition.

One of the most investigated positive emotions in the last few years has been foreign language enjoyment (FLE), defined as a complex positively valenced emotion resulting from a combination of challenge and perceived ability that allows tackling difficult tasks (Dewaele and MacIntyre 2014). The authors developed a FLE scale consisting of 21 items reflecting positive emotions towards the learning experience, peers, and teachers and combined it with an eight-item short version of Horwitz et al.'s (1986) FLCA. A moderate negative correlation emerged between FLE and FLCA in a sample of 1740 FL learners from all over the world, suggesting that both emotions operate as two separate but related dimensions. Statistical analyses showed that higher levels of FLE and lower levels of FLCA were linked to gender, age, level of multilingualism, level in the FL, relative standing among peers in the FL class, type of educational institution, and cultural background (Dewaele and MacIntyre 2014). Analysis of descriptions of enjoyable episodes in the classroom revealed that FLE was more likely to occur in empowering activities that allowed a certain degree of autonomy when learners had to be creative and collaborated with classmates. Teacher praise and supportive peers in a positive and safe classroom environment were also frequently mentioned.

Factor analysis of the original dataset revealed two sub-dimensions of FLE: firstly, social FLE, reflected in shared legends, classroom laughter, and pleasant relationships with teachers and peers, and secondly, private FLE, reflected in internal feelings, such as pride, having fun, and a sense of accomplishment (Dewaele and MacIntyre 2016).

Subsequent research on the sources of FLE and FLCA showed that the former was more strongly predicted by teacher characteristics while the latter was more likely to emerge from the learners themselves. More positive attitudes toward the FL teacher and frequency of use of the FL by the teacher were found to be strong predictors of FLE (for overviews, see Dewaele 2022; Wang et al. 2021). Teacher unpredictability in class emerged as a strong positive predictor of FLE in British classrooms, but it had a negative effect in Kuwaiti FL classes (Dewaele et al. 2023). Teacher friendliness was a strong predictor of FLE in different settings. It also appeared that FLE (but not FLCA) is very much teacher-dependent; in other words, learners may feel equally anxious with their two FL teachers, but they typically report higher levels of FLE with one teacher. Finally, Dewaele and MacIntyre's (2019) mixed methods study found that learners' FLE was mostly predicted by teacher-centred variables while their FLCA was mostly predicted by a personality trait – namely, participants' level of emotional stability (confirming previous research, see Dewaele 2017), followed by their relative standing among the peers. An analysis of the descriptions of episodes of intense enjoyment and anxiety in the classroom showed that teachers were most frequently mentioned in relation to FLE, while the most common source of FLCA was learner-internal.

Emotions matter because they have a direct or an indirect effect on FL performance and acquisition. A number of meta-analyses confirmed that FLCA hampers FL performance and slows progression in the FL (Botes et al. 2020a; Teimouri et al. 2019). FL boredom is similarly linked to lower levels of FL proficiency (Li 2021). Positive emotions like FLE, on the other hand, are linked to better performance in the FL. Botes et al. (2022) carried out a meta-analysis of studies that linked FLE and academic achievement in the FL and found a moderate positive correlation.

Current contributions and research

Trait emotional intelligence and classroom emotions: an intervention study

Trait emotional intelligence (TEI) has been found to be significantly linked to FL classroom emotions in several studies across the world. Li and Xu (2019) were inspired by positive psychology and combined a correlational study and a mixed method experimental investigation into the relationship between TEI, FLCA, and FLE. For the correlational study, the authors collected data from 1,718 Chinese EFL high school learners. Statistical results showed medium correlations between students' TEI, FLE, and FLCA with more emotionally intelligent English learners reporting higher levels of FLE more and lower levels of FLCA in their classes. Feedback from 55 participants on an open question revealed that 11 participants were unaware of their emotions in their EFL classes, while the remaining 44 participants reported awareness of their emotions in the EFL class and explained that they drew on their TEI to regulate their emotions, especially in stressful situations or when experiencing FLCA. They used a variety of strategies, including self-distraction, focusing on something unrelated with the source of anxiety. Other students also reported that they tried to feel more positive in stressful situations by distracting themselves. Many students also emphasized the importance of thinking positively and boosting their confidence in their English learning journey by setting themselves clear and attainable goals. Some students used self-soothing strategies in stressful situations, like breathing deeply or closing the eyes to calm down, while other students took a longer-term perspective to deflect FLCA, such as increased effort in the tasks that caused anxiety or a private reminder of the crucial importance of English in

order to boost their motivation. The authors also carried out a six-week intervention study that included a pre-test, a treatment, and a post-test. The intervention was a PP-based TEI intervention (ARGUER training model in class with three activities: identifying three good things, savouring positive experiences, and developing learned optimism in English learning) (Gregersen et al. 2014: 328, 340–345) (p. 11). There was an experimental group of 56 students and a control group of 52 students, who continued with the traditional teaching. Statistical analyses and qualitative data collected through interviews indicated that the intervention had boosted levels of TEI of the members of the experimental group ($eta^2 = .18$), had increased their positive classroom emotions ($eta^2 = .06$), and had allowed them to reduce their negative classroom emotions ($eta^2 = .14$) (p. 12). The authors acknowledge that in the absence of a delayed post-test, they could not establish how permanent the changes were, but the study did demonstrate that students' happiness, optimism, self-motivation, and ability to regulate their emotion regulation could be boosted.

The effect of classroom environment and trait emotional intelligence on classroom emotions

Li et al. (2021) pursued this avenue of research, seeking to examine the joint effects of TEI and classroom environment on FLE and FLCA. The authors used online questionnaires to obtain data from 1,718 secondary school and 1,295 university EFL students in China. Multiple regression analyses revealed that TEI and classroom environment were significant single and joint predictors of FLE and FLA. The total of variance explained was higher for university students (47%) than for secondary school students (33%). Closer analysis revealed that FLE was more strongly predicted by classroom environment than by TEI. In contrast, levels of FLCA were more strongly predicted by TEI than by classroom environment. The authors conclude that it is important to link learners' personality traits like TEI with broader environmental factors, such as classroom environment, in order to understand learner emotions in context.

The effect of trait emotional intelligence on classroom emotions in the L1 and FL class

Resnik and Dewaele (2020) used a mixed-methods approach to investigate the classroom enjoyment and anxiety in the L1 and FL of the same learners. Participants were 768 secondary school pupils and university students in their L1 German language classes and their EFL classes. Levels of anxiety and enjoyment were both found to be higher in the EFL classes than in the L1 classes. The effect size was small for enjoyment and medium for anxiety. A moderate negative relationship (small effect size) between enjoyment and anxiety was found in both languages. Higher levels of TEI were linked to significantly higher levels of enjoyment in the L1 and FL classes (small effect size) and to significantly lower levels of L1 and FL anxiety (medium effect size). Analysis of the qualitative material collected through two open questions at the end of the survey on feelings and emotions experienced in L1 and FL classes revealed that mentions of fun in EFL classes were twice the number of those referring to L1 classes. Mentions of boredom were also three times higher for the German L1 classes than for the EFL classes. The authors conclude that learners seemed to experience both positive and negative more keenly in their EFL classes than in their L1 classes, which might be attributed either to fact that the EFL classes were perceived to be more exciting and challenging or to the fact that the teachers of the EFL used a better didactic approach.

The effect of trait emotional intelligence and autonomy on classroom emotions in 'in person' and online EFL classes

Resnik and Dewaele (2021) investigated the effect of the abrupt move to emergency remote teaching because of the COVID-19 pandemic on the FLE and FLCA of 510 European EFL university students. Other dependent variables included TEI and learner autonomy. Participants, who were about two months into exclusive online classes, were asked to rate their levels of FLE and FLCA pre-pandemic in in-person classes as well as in the online condition. They reported significantly higher levels of FLE and FLCA in their in-person classes than in the online classes. A separate analysis of three sub-dimensions of FLE – teacher appreciation, private enjoyment, and social enjoyment – showed a smaller drop for teacher appreciation (small effect size) than for private enjoyment and social enjoyment (large effect size). A moderate negative relationship between FLE and FLCA in in-person classes disappeared in the online classes. Analysis of the qualitative data showed that students perceived the online classes as being less interesting, too monotonous, repetitive, and boring, which some participants attributed to the online classes being more teacher-centred than the in-person classes. They appreciated the efforts of the teacher but pointed out that the opportunity to interact with peers was severely limited in an online environment, leading to a feeling of social isolation and emotional detachment. Participants with high scores on TEI also scored high on learner autonomy, and both were positively correlated with FLE and negatively with FLCA in both contexts. More autonomous and emotionally intelligent students seemed thus better equipped to remain positive about the FL learning experience, even in challenging circumstances. The authors conclude that the online classroom dulls both positive and negative emotions and that learners with high levels of TEI and autonomy were better able to compensate for the disembodied nature of the classes and their lack of emotional resonance.

Recommendations for practice

The main point that emerges from research into personality, emotion, and motivation in the last decades is that no single higher-order personality trait is the magic predictor of success in FL performance and learning. Instead higher-order personality traits interact with lower-order personality traits, such as TEI, which shape learners' emotions and thus sustain and amplify motivation (Dörnyei 2020). An intervention study showed that it is possible to boost learners' TEI and thus teach them how to better regulate their emotions in the classroom. It means that teachers may not be able to actually lower learners' FLCA, but they may create a positive, non-threatening environment where anxious learners will not be paralyzed by FLCA and where the right amount of challenge and excitement will boost everybody's positive emotions and eliminate boredom. Creating the right emotional atmosphere will increase the probability of optimal experiences in the language classroom and will ultimately lead to successful FL learning. As Papi and Khajavi (2021) demonstrated, a positive promotion-oriented approach to FL learning and teaching (rather than a negative preventive-focused approach) leads to more adaptive motivational, emotional, and behavioural patterns among learners, which in turn contribute to achievement in the FL.

Future directions

Researchers have realized that personality traits, learner emotions and motivation are not just static predictors of learner performance and progress in the FL. Causality is multi-directional (cf. Botes et al. 2020b; Dewaele and Botes 2020; Dewaele et al. 2022), and variables interact

in a highly complex dynamic system at micro-, meso- and macro-level (Dewaele et al. 2023). In other words, learner performance and progress in the FL will shape certain personality traits, emotions, and motivation. A certain degree of openness might affect an individual's choice to study a FL, but the resulting discovery of a new language and culture and the exciting potential it offers to create a new identity in a FL might strengthen the initial level of openness of that learner. Similarly, a high level of FLE combined with low levels of FLCA and FL boredom, which themselves are linked with a stronger motivation, are likely to boost FL performance, which reinforces the positive emotions, lowers the negative ones, and strengthens motivation.

Further research is needed to understand how teachers can help learners to break out of a loop negative reinforcement – where weak performance saps positive emotions and undermines motivation – and how they can replace it by a loop of positive reinforcement.

Related topics

conceptualizing language learning and language education; theories and methods; identity

Further reading

Dewaele, J.-M., Chen, X., Padilla, A. M. and Lake, J. (2019) 'The flowering of positive psychology in foreign language teaching and acquisition research', *Frontiers in Psychology. Language Sciences*, 10: 2128. (This paper offers an overview of the impact of positive psychology on foreign language teaching and acquisition research, distinguishing three periods.)

Dewaele, J.-M. and Li, C. (2020) 'Emotions in second language acquisition: A critical review and research agenda', *Foreign Language World* [Chinese 外语界], 196(1), 34–49. (This critical overview paper of emotion research in second language acquisition offers suggestions for further research including a focus on antecedents of emotions using the framework of control-value theory.)

Dewaele, J.-M. and Pavelescu, L. (2021) 'The relationship between incommensurable emotions and Willingness to Communicate in English as a Foreign Language: A multiple case study', *Innovation in Language Learning and Teaching*, 15: 66–80. (Using Barrett [2017] as a theoretical basis, the authors in this qualitative study investigate the dynamic and unique nature of FLE and FLCA two EFL learners with different personality profiles.)

MacIntyre, P. D., Gregersen, T. and Mercer, S. (2019) 'Setting an agenda for Positive Psychology in SLA: Theory, practice, and research', *The Modern Language Journal*, 103(1): 262–274. (In this programmatic paper, the authors explain how positive psychology can contribute to new and original research and practice in foreign language teaching and learning.)

Wang, Y., Derakhshan, A. and Zhang, L. J. (2021) 'Positive psychology in second/foreign language learning and teaching research and practice: Past, current and future directions', *Frontiers in Psychology*, 12: 731721. (The authors report on seven positive psychology variables – academic engagement, emotion regulation, enjoyment, grit, loving pedagogy, resilience, and well-being – and their effects on FL learning.)

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29

Sociocultural approaches to language development

Steven L. Thorne and Thomas Tasker

Introduction

This chapter describes approaches to human development that are rooted in the writings of the early-20th-century Russian psychologist L. S. Vygotsky. In contrast to theories which posit linear stage development that is largely a function of biological maturation, Vygotskian sociocultural theory argues that higher-order mental functioning is a mediated process that emerges and develops through engagement with culturally organized practices, artefacts, and milieus. In this way, sociocultural/cultural-historical approaches emphasize the dialectical relationship between ontogenesis (an individual's development across the lifespan) and the social and material conditions of everyday life activity and experience. Within the field of applied linguistics, sociocultural approaches to second language learning research are frequently praxis-based and involve pedagogical interventions designed to enhance learning processes and outcomes.

The use of the plural marker with the term 'sociocultural approaches' has to do with the different labels applied to developmental research directly associated with or significantly influenced by the Vygotskian lineage. The term 'sociocultural theory' (SCT) is often used in applied linguistics research, which follows from the early work of James Wertsch, who sought to differentiate Vygotskian theory as it was coming to be developed in the West from what he perceived as some problematic elements within the Russian tradition (see Wertsch et al. 1995). Researchers in education, computer science and informatics, workplace studies, cognitive science, and other fields often produce research under the title cultural-historical activity theory (or CHAT), with references to A. R. Luria (1976) and specifically A. N. Leont'ev (1978), both of whom were contemporaries of Vygotsky and who continued and elaborated Vygotsky's research program after his death. In practice, the terms SCT and CHAT have been used interchangeably and even in collocated form (sociocultural/cultural-historical) since they refer to a common intellectual tradition and core set of principles. For the remainder of this chapter, reference to the broad tradition of sociocultural and cultural-historical approaches will be designated by SCT, while the use of CHAT will refer specifically to cultural-historical activity theory as outlined by post-Vygotskian theorists, such as Engeström (1999).

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Historical perspectives

The intellectual roots of sociocultural theories of human development extend back to 18th- and 19th-century German philosophy (particularly Hegel), the sociological and economic writings of Marx and Engels (specifically *Theses on Feuerbach* and *The German Ideology*), and most directly to the research of Vygotsky and his colleagues Luria and Leont'ev (see Valsiner and van der Veer 2000). Despite the fact that Vygotsky suffered an early and untimely death in 1934 at only 38 years of age, he had a tremendously productive career that was deeply influenced by the fact that he came of age during the Russian Revolution.

One of the more prominent researchers within the Vygotskian tradition, Yrjö Engeström (2015), helps to clarify the relationship between sociocultural and cultural-historical theories by describing their historical development over three generations. The first-generation centres on Vygotsky and his concept of mediation via 'auxiliary means', arguing that cultural tools enable, and are necessary for, specifically human forms of cognitive and material functions. The second generation begins with A. N. Leont'ev (e.g. 1981), who accepted the importance of cultural mediation but emphasized participation in practical life *activity* as the principle that dialectically relates external forms of social life to individual and collective psychology. Activity in this sense refers to social relations and rules of conduct that are governed by cultural, political, and economic institutions (Ratner 2002). Engeström (2001) describes the third generation's ongoing task as that of developing conceptual tools to address dialogue, a multiplicity of perspectives, and the interrelations between defined systems of culturally organized activity. As part of this effort, what has become known as CHAT has continued to develop as a network of contemporary conceptual and methodological influences that incorporate insights from hybridity scholarship, actor network theory, distributed cognition, and social practice theory, among others.

Critical issues and topics

In his work, Vygotsky attempted to formulate 'a psychology grounded in Marxism' (Wertsch 1995: 7), which emphasized locating individual development within material, social, and historical conditions. Wertsch (1985: 199) has suggested that Vygotsky's developmental research was inspired by three essential principles of Marxist theory: (1) human consciousness is fundamentally social, rather than purely biological, in origin; (2) human activity is mediated by material artefacts (e.g. mobile phones, hammers) and psychological and symbolic tools (e.g. language, literacy, numeracy, concepts); and (3) units of analysis for understanding human activity and development should be holistic in nature.

These Marxist influences, coupled with Vygotsky's insights into method and theory, created a new ontology of human development, one that shifts away from long entrenched dualisms of individual-social and biology-culture and toward a dialectical understanding of biology and culture as unified processes that interweave with one another. In an attempt to overcome the mind-body-society trichotomy that dominated psychology and philosophy early in the 20th century (and still today), Vygotsky proposed four mutually influencing 'genetic' (or historical time frame) domains in application to the study of human development. The first is the phylogenesis of *Homo sapiens* as a species, which focuses on the approximately three-million-year co-evolution of bipedal human biology in relation to the appearance of material tools, increasingly complex symbolic and cultural practices and, more recently, the emergence of language. Two examples of the co-evolutionary interplay of biology and culture include the evolution of the modern human hand (providing greater manual dexterity), which

is isomorphic with the archaeological record showing an increasing complexity of material artefacts and implements, and the enlargement of the frontal cortex of the human brain in tandem with the emergence of language and complex cultural practices (see Cole 1996; Deacon 1997; Evans and Levinson 2009).

The second time frame is the sociocultural domain, which focuses on the multi-generational development of human cultures over historical time, with the implication that humans are born into an existing environment that provides powerful conceptual and material resources for communication, thinking, problem-solving, and acting on the world through the use of symbolic tools and material implements. Tomasello (1999: 37) coined the phrase 'ratchet effect' to describe the preservation and creative modification of both material and symbolic forms of culture from generation to generation.

The third domain examines the ontogenesis of individuals over the lifespan. Here, Vygotsky recognized two lines of development: (1) biological maturation through chronological aging and (2) the internalization of cultural forms of cognition and behaviour beginning in infancy and continuing across the lifespan. Ontogenesis can be described as the merger point or nexus of the phylogenetic and sociocultural domains during which the individual develops out of the interaction between biological and cultural inheritances (Lantolf and Thorne 2006: 45).

The fourth domain is labelled microgenesis, which describes the particular mental functions, abilities, and processes that one learns over shorter periods of time. The latter two domains are the most relevant and utilized time frames for applied linguistics and second language (L2) research, though studies focusing on the phylogenetic domain (Tomasello 1999) and the sociocultural domain (Scribner and Cole 1981) have been highly productive in illuminating the relationships between human cultures and the universal and heterogeneous qualities of higher order, which is to say, socioculturally informed and internalized mental functions.

Internalization, mediation, and regulation

In relation to psychological theory in the early 20th century, Vygotsky (1981) stated that the challenge to psychology was to 'show how the individual response emerges from the forms of collective life [and] in contrast to Piaget, we hypothesize that development does not proceed toward socialization, but toward the conversion of social relations into mental functions' (p. 165). Drawing from earlier theorists such as Janet (see Valsiner and van der Veer 2000), Vygotsky termed this process of internalization the 'genetic law of cultural development' and described it as follows:

> Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition.
>
> *(Vygotsky 1981: 163)*

As this quotation makes clear, higher-order cognitive functions, which, in addition to those mentioned, include planning, categorization, interpretive strategies, and forms of rationality, are internalized from initially external sources and become available as cognitive resources. This process of creative appropriation occurs through participation in informal social interaction and formal schooling and, more generally, through exposure to and use of semiotic systems, such as languages, textual and digital literacies, numeracy and

mathematics, and other historically accumulated cultural practices. In this sense, internalization describes the developmental process whereby humans gain the capacity to perform complex cognitive and physical-motor functions with progressively decreasing reliance on external assistance.

In practical terms, human-created tools and artefacts such as language, explicit and implicit rules for appropriate conduct, speedometers and digital navigation systems, and alarm clocks (to take a few diverse examples) mediate everyday cognition and interaction in the world and, subsequently, afford humans the capacity to better control their biological and behavioural activity (Thorne 2015). SCT researchers describe a developmentally sequenced shift in the locus of control of human activity as object-, other-, and self-regulation. Object-regulation describes instances when artefacts in the environment afford or make possible cognition/activity, such as the use of a dictionary to look up unknown words while reading, use of large language model artificial intelligence (i.e. ChatGPT) to assist with writing and editing, the use of PowerPoint or an outline when making an oral presentation, or the use of pen and paper for making a to-do list or working out mathematical problems. Other-regulation describes mediation by people and could include explicit or implicit feedback on grammatical form, editorial comments on a manuscript, or guidance from an expert. Self-regulation, as the label implies, refers to individuals for whom object- or other-regulation is unnecessary because originally external forms of mediation have been internalized and are therefore no longer needed for the execution or completion of a task. In this way, development can be described as the process of gaining greater voluntary control over one's capacity to think and act either by becoming more proficient in the use of meditational resources or through a lessening of reliance on external meditational means.

Culture, language, cognition, and biology

'Culture' in the sense intended by Vygotsky and subsequent sociocultural theorists includes but extends far beyond 'high culture' phenomena, such as literature, architecture, works of art, and the like. In a more significant way, culture refers to the historical accretion of all of human life, including the everyday rituals of interpersonal communication, family structure, institutional and group identities, creation and use of material artefacts and technologies, and approaches to problem-solving, literacy and numeracy practices, and most fundamentally, the lexicalization and grammaticalization patterns specific to language (or languages).

The sociocultural tradition argues that human mental functioning is fundamentally a mediated process that is organized by cultural tools and activities, the primary of which involve language. The key that links thinking to social and communicative activity resides in the double function of the linguistic sign, which simultaneously points in two directions – outwardly, 'as a unit of social interaction (i.e. a unit of *behavior*)', and inwardly, 'as a unit of thinking (i.e. as a unit of *mind*)' (Prawat 2000: 268, italics in original). The inward or self-directed use of language as a symbolic tool for cognitive regulation is called private speech (see Lantolf 2003; McCafferty 1992). Private speech is defined as an individual's use of language for purposes of maintaining or regaining self-regulation – that is, to aid in focusing attention, problem-solving, and orienting oneself to a task and to facilitate internalization of novel or difficult information (e.g. language forms) (Frawley 1997; Ohta 2001). The use of initially social forms of talk to regulate one's mental activity illustrates the interpenetration between an individual's psychology and the sociocultural world (Steinbach-Koehler and Thorne 2011). In this sense, language is argued to serve as the primary tool through which humans construe the world (see the following discussion), and through the process of learning a language and using it for cognitive

regulation, biologically endowed capacities for perception and cognition are reshaped into culturally and conceptually specific forms of perception and thinking.

From within the sociocultural tradition, Vološinov describes the relationship between signs/language and consciousness as follows:

> Consciousness takes shape and being in the material of signs created by an organized group in the process of its social intercourse. The individual consciousness is nurtured on signs; it derives growth from them; it reflects their logic and laws. The logic of consciousness is the logic of ideological communication, of the semiotic interaction of a social group.
>
> *(Volosinov 1973: 13)*

This view of language-as-culture and language as a building block for consciousness and perception is supported by current linguistic, anthropological, and neuroscience research associated with the Sapir-Whorf hypothesis of linguistic relativity (e.g. Gumperz and Levinson 1996; Gentner and Goldin-Meadow 2003; Lucy 1996; Slobin 1996). Linguistic relativity is the notion that the organization of language and its conventions carries forward historically developed systems of meaning – what can be termed more broadly as culture – into the here-and-now of activity in the present. Indeed, the diversity of obligatory semantic distinctions that characterize all languages have been demonstrated to correspond to habitual and speech-community specific forms of thought in the areas of spatial cognition (Levinson 2003a), categorization (Lakoff 1987), and time (Boroditsky 2001). Levinson (2003b) sums up the cognition-language-culture connections of this position as follows:

> (1) languages vary in their semantics just as they do in their form, (2) semantic differences are bound to engender cognitive differences, (3) these cognitive correlates of semantic differences can be empirically found on a widespread basis.
>
> *(Levinson 2003b: 41–42)*

Sociocultural theory places great emphasis on the linguistic means people employ in the service of everyday activity, whether oriented toward multiparty communication or to regulate one's own cognitive activity. This has resulted in affinities between sociocultural theories of development and systemic functional linguistics (see Wells 1999), as well as a proposal to selectively recover key insights from early research on semiotics and communication (as outlined by Peirce, Wittgenstein, Garfinkel, and others) and to bring these traditions into contact with contemporary scholarship drawing upon corpus-informed theories of language structure and usage-based models of language acquisition (e.g. Tomasello 2003; Thorne and Lantolf 2007). Conceptions of language structure, use, and learning in SCT are not concerned with rule-governed, *a priori*, or prescriptivist conceptions of grammar and instead emphasize creative imitation of available communicative resources and repertoires, such as verbalized utterances and gestures, that emerge and are adapted to situated and goal directed communicative and cognitive activity.

This view of language is aligned with recent research emerging from cognitive-functional linguistics and usage-based approaches to language development, which emphasize that language structure emerges from, rather than precedes, language use (see Hopper 1998). A principal contributor to usage-based approaches is the evolutionary anthropologist and linguist Michael Tomasello, who describes the integration of child language learning with the more general cognitive and social skills of intention-reading and pattern recognition. He notes that

these skills are 'evolutionarily fairly old, probably possessed in some form by all primates' (2003: 4), and hence, like other Vygotskian developmental psychologists, such as Luria (1976) and Cole (1996), Tomasello acknowledges the contribution of evolutionarily developed cognitive adaptations that make language learning possible. However, in sharp contrast to proponents of biologically driven models of language acquisition, Tomasello's empirical research supports a dual inheritance theory: humans inherit both genes *and* sociocultural environments. Tomasello argues that 'children begin to acquire language when they do because the learning process depends crucially on the more fundamental skills of joint attention, intention-reading, and cultural learning – which emerge near the end of the first year of life' (2003: 21). From this perspective, language learning occurs through the imitative process of cultural learning, and the biological capacity supporting language learning is not fully specific to language per se but involves the broader ability to share attentional frames and to culturally attune to and to imitate the intentional actions, gestures and gaze orientations, and conceptual perspectives exhibited by people in one's environment. Tomasello emphasizes that *Homo sapiens* has evolved the capacity for cultural learning in particular, which is supported by more general (non-language specific) cognitive skills such as schematization, categorization, pattern finding, and analogy-making. Usage-based models of language acquisition have been recently incorporated into sociocultural theorizations of second language development (Thorne and Lantolf 2007) and, more broadly, have come to inform a variety of interactional, cognitive, and computational approaches to second language and applied linguistics research (e.g. Eskildsen 2015; N. Ellis 2019).

The zone of proximal development and dynamic assessment

Among Vygotsky's numerous contributions to developmental psychology, the zone of proximal development (ZPD) has had arguably the greatest impact (Chaiklin 2003). According to Chaiklin's (2003) exhaustive search of Vygotsky's available published works, there are a total of eight that mention the ZPD. Though the ZPD concept is often assumed to have originated with Vygotsky, Vygotsky himself credits American psychologists, particularly Meumann and McCarthy, with establishing the 'double-level approach' of attempting to understand not only what a child can do at a given point in time but also what their future potential might be.

The most frequently referenced definition of the ZPD is 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky 1978: 86). With greater specificity, Vygotsky describes the ZPD as follows:

> The [ZPD] defines those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state. These functions could be termed 'buds' or 'flowers' of development rather than the 'fruits' of development. The actual developmental level characterizes mental development retrospectively, while the [ZPD] characterizes mental development prospectively. . . . the [ZPD] permits us to delineate the child's immediate future and his dynamic developmental state, allowing not only for what already has been achieved developmentally but also for what is in the course of maturing.
>
> *(Vygotsky1978: 86–87)*

The defining aspect of the ZPD concept is that, in contrast to traditional assessment measures that indicate the level of development that has been already attained, the ZPD is forward-looking

through its assertion that mediated performance and, importantly, the discovery of the qualities of assistance necessary for an individual to perform particular competencies are indicative of the readiness for independent functioning in the future. Vygotsky was particularly interested in the effects of formal schooling on cognitive development.

One of Vygotsky's most important findings is that learning collaboratively with others, particularly in instructional settings, precedes and shapes individual development. The relationship between learning and development is not directly causal, but intentionally designed learning environments (e.g. instructed L2 settings) can stimulate qualitative developmental changes. In this sense, the ZPD is not only a model of the developmental process but also a conceptual tool that educators can use to understand aspects of students' emerging capacities that are in early stages of maturation. When used proactively, teachers using the ZPD as a diagnostic have the potential to create conditions for learning that may give rise to specific forms of development in the future. This point leads to a topic discussed later in this chapter – assessment practices rooted in the ZPD.

Within applied linguistics and language educational research, the diverse adoptions and adaptations of the ZPD concept may not always align with doctrinal interpretations of Vygotskian theory (see Chaiklin 2003; Donato 1994). The ZPD concept has proliferated to the point that it now encompasses research and pedagogical innovation that includes parent-child interaction, teacher-student interaction, and peer-interaction dynamics. The ZPD has been applied primarily in regard to individual development, but it has also been proposed as a model of whole class teaching (Guk and Kellogg 2007). It is clear that the ZPD concept is divergently understood, and this is the case not only for casual adopters but also is evident among researchers working primarily or exclusively within cultural-historical psychology itself.

In a review of research in applied linguistics and second language research, Kinginger (2002) has identified three uses of the ZPD, each of which differ from, or significantly extend, Vygotsky's core emphasis on the learner and emerging capacities: (1) a 'skills' interpretation, (2) a 'scaffolding' interpretation, and (3) a 'metalinguistic' interpretation. Within what she considers to be the most problematic category, the skills interpretation, Kinginger identifies uses of the ZPD concept that illustrate

> a process of reduction and simplification such that [use of the ZPD] can serve to justify extant institutionalized practices and reinforce traditional views of the language classroom as a locus of skill acquisition in the service of standardized education. Stripped of its original meanings, the ZPD is inserted into a conventional descriptive scheme and provides no new object for reflection on theory or practice.
>
> *(Kinginger 2002: 253)*

For its part, the scaffolding interpretation involves an interesting reciprocal formulation of the ZPD, where ostensibly the focus is on the learner, but in actual fact, and certainly as an entailment of the scaffolding metaphor, power is located primarily in the teacher or expert who is providing the 'scaffold', or assistance. In most descriptions of scaffolding, the adult (or teacher) 'controls' the elements that are beyond the child's capacity, allowing the child to focus on 'only those elements that are within his range of competence' (Wood et al. 1976). It is this element of scaffolding that has been explicitly linked to the ZPD (see Rogoff and Wertsch 1984; Bruner 1986) and, in some cases, seems to have erroneously become synonymous with it (see Stone 1993, for a discussion). In summarizing the skills and scaffolding variants of the ZPD, Kinginger (2002) notes that in the skills case, the ZPD concept is uncritically

appropriated and used to describe what are essentially transmission models of teaching (see Moll 1989), and while the scaffolding interpretation productively acknowledges contingently provided assistance, as the name would suggest, there is an implicit shift in focus from development (ZPD) to instruction (scaffolding).

Kinginger describes a third and, in her (and our) assessment, a highly productive extension of the ZPD which emphasizes metalinguistic functions of language use and learner discussion about their own language production. In this vein, Swain and colleagues (Swain 2000; Swain et al. 2009) describe 'collaborative dialogue' and 'languaging' as uses of language that help to problem-solve, share and build knowledge, and complete thoughts. Swain et al. (2009: 5) define languaging as 'a form of verbalization used to mediate the solution(s) to complex problems and tasks' and the use of language to shape knowledge and experience. The metalinguistic function of language is critical to the learning processes as it externalizes current thinking and ideas, which in turn become objects for individual and collaborative reflection and transformative action.

Within applied linguistics, there have been a number of elaborations and proposals for the broadening of the ZPD concept. Wells (1999) has suggested that the ZPD need not be characterized as a fixed or stable attribute of an individual or environment but rather as an unpredictable nexus of people and tools in joint activity, which together create conditions for transformation and development. In a number of publications, Mercer (2000, 2002) describes what he terms the intermental development zone (IDZ), which draws elements from both the ZPD and scaffolding. The IDZ is defined as a 'contextualizing framework for joint activity, whose effectiveness is likely to depend on how well a teacher can create and maintain connections between the curriculum-based goals of activity and a learner's existing knowledge, capabilities, and motivations' (Mercer 2002: 143). In an insightful revision of the ZPD, Negueruela (2008) has proposed the zone of potential development (ZPOD) as a ZPD-informed approach that is more attuned to second language acquisition and adult L2 learning. Negueruela argues that development follows diverse trajectories. Thus, by replacing 'proximal' with 'potential', he removes the telos of a 'proximal' next stage of development and acknowledges situational contingency and the necessity of a learner's agency in realizing their developmental path. In particular, Negueruela stresses the importance of concepts as 'psychological mediators' and the importance of 'devising pedagogical sequences that allow learners to create their own conceptualizations through guided imitation' (2008: 2001).

The ZPD has also come to inform a proposal for the dialectical union of assessment and learning called dynamic assessment (DA). DA is a procedure that unifies the goals of assessing a learner's developmental potential through structured sets of interactions that also are meant to foster learning (Poehner and van Compernolle 2020). DA methods of assessment involve mediating an examinee's performance by providing a scaled continuum of learner-contingent prompts, leading questions, and more direct assistance during the assessment intervention itself. Its primary goal is to fuse assessment procedures with interactive opportunities for learning, and in so doing, to produce a more nuanced understanding of an examinee's current level of development and future potential. Poehner (2008) provides an in-depth description of DA use in education broadly and its contribution to issues of 'fairness' in educational processes and suggests guidelines for the use of DA in second and world language education contexts. Related research includes Poehner and van Compernolle (2020), which provides a reconceptualization of validity using a DA lens, and Poehner and Infante (2019), which closely examines expert-learner interaction and extends DA principles to formative assessment in world languages classroom practice.

Recommendations for practice

Vygotsky was inspired by Marxist notions of social justice and spent much of his career committed to research and pedagogical interventions that he hoped would positively influence public education, a project that was nascent in Russia (and the world) at that time and which he hoped would serve a socially progressive function in society (Prawat 2000; Thorne 2005; Lantolf and Poehner 2014).

In principle, SCT research aims to generate analyses that would lead to the development of material and symbolic-conceptual tools necessary to enact positive developmental change through carefully designed pedagogical interventions. Though SCT is also used descriptively and analytically as a diagnostic framework, its essence is to take a situation or condition and transform it in an effort to create something qualitatively new. In this sense, SCT and CHAT have been used equally as research frameworks and heuristics supporting innovation in a wide array of contexts including education (Daniels 2001; Engeström 2015; Prior 1998; Stetsenko 2016), human-computer interaction (Kaptelinin and Nardi 2006), use of digital technologies in language education (Thorne 2003, 2009, 2016), and various aspects of second and foreign language teaching and learning (Kramsch 2000; Lantolf and Poehner 2014; Swain and Lapkin 2002; Thorne 2000, 2005; van Compernolle 2014; van Lier 2004).

To conclude with specific examples of SCT-informed applied linguistics research and classroom practice, two contexts and approaches will be briefly reviewed: concept-based instruction and the use of CHAT in teacher professional development and school restructuring projects.

Concept-based teaching, also referred to as systemic-theoretical instruction (STI), is an approach that is closely associated with the work of Gal'perin (1992). In this approach, pedagogical materials are conceived of as cognitive tools. Gal'perin emphasized the importance of orienting students to the conceptual structuring of complex domains of knowledge and/or action, or the 'orienting basis' for action, which he argued must precede guided practice (Arievitch and Stetsenko 2000: 86). Gal'perin's model proposes that without a conceptually coherent orientation, learning is not optimized and instead occurs on a hit-or-miss basis. Within world language education, Negueruela (2003, 2008: 203) outlines four essential principles and processes of concept-based teaching and learning: (1) the minimal unit of L2 instruction is the concept; (2) concepts must be materialized – for example, in the form of diagrams and flowcharts – so as to help learners understand the semantic, structural, and functional properties of the target concepts; (3) learners verbalize the processes and linguistic choices represented in concept-based materializations; and (4) the concepts and/or categories of meaning represented by the materializations should be systematically connected to other relevant concepts. Areas of L2 grammar instruction that have been addressed using concept-based instruction include the organization of tense, aspect, and mood in a university-level Spanish foreign language course (Negueruela 2003, 2008); the formation of the passive voice by L2 learners of German (Kabanova 1985); the grammatical concept of voice in L2 French (Swain et al. 2009); teaching of L2 pragmatics (van Compernolle 2014); and deontic and directive language use for advanced learners of English in preparation for taking on instructional roles as teaching assistants (Thorne et al. 2008).

A CHAT-informed formative intervention approach known as change laboratory, or developmental work research (DWR) (Engeström 2007), gives educators (and others) a space to address and resolve the conflicts and contradictions they face in their workplaces. The change laboratory method involves creating a space for participants and interventionist-researchers to explore the past and current organization-level practices that present a problem or challenge that the group faces. The participants are introduced to a conceptual tool (often the CHAT

framework itself) that they adapt and develop in their own way to identify, make sense of, and potentially use to resolve the contradictions they face in their workplace. The basis of the formative intervention is Vygotsky's (1978) 'method of double stimulation' in which the participants are presented with a problem or contradiction that they themselves have identified (the first stimulus) and then are guided by mediational means introduced by the researcher or the participants themselves (the second stimulus) with the goal of developing new understandings and potential solutions. By directing the path and process of the intervention and moving from abstract ideas to concrete solutions, participants exert and transform their agency to affect change in their institutions (Engeström and Sannino 2021; Sannino et al. 2016).

Morselli and Sannino (2021) discuss a change laboratory in an Italian vocational school as a means to analyze the model of double stimulation. Teachers in the school were concerned about the declining enrolment in one of their courses (the first stimulus). Meeting throughout an academic term with a researcher/facilitator, the teachers collectively developed an interdisciplinary project that could potentially increase enrolment. The development of the project idea (the second stimulus) was animated by the teachers' conflicting motivations as they searched for a solution and resulted in the school implementing the project the following year. V. Ellis (2008) applied DWR methodology to investigate the trajectory of teacher professional development. V. Ellis examined the transformation of school-university activity systems through a program aimed at remediating relationships between pre-service and mentor teachers. Implementing collaborative planning led to changes in the way some of the mentor teachers conceptualized professional learning and increased the opportunities for dialogue with novice teachers. In these studies, the change laboratory/DWR intervention provided the means for educators to explore novel solutions to entrenched contradictions in their institutions that resulted in new understandings of professional practice and new systems of professional activity.

Conclusion and future directions

This chapter has described the intellectual foundation of sociocultural and cultural-historical perspectives on human development and their relevance to applied linguistics research and pedagogy. At the core of this approach is mediation, the principle that humans do not act directly on the world – rather their cognitive and material activities are mediated by cultural tools, artefacts, and technologies. The concept of internalization describes the processes through which interpersonal and person-environment interactions form, and transform, one's internal mental functions. This developmental process occurs within the ZPD, which is defined as the difference between the level of development already obtained and that which may only be possible, and visible, in joint activity. In this sense, the ZPD is a model of developmental processes and, through related methods such as dynamic assessment, can provide insight into students' emerging capacities that are in early stages of maturation.

The future of SCT research and pedagogical innovation is robust due in large part to its principled and adaptive approach. Because of its emphasis on praxis, SCT is both a powerful analytic research framework and also an approach with deep roots in emancipatory traditions of activist engagement (Lantolf and Poehner 2014; Stetsenko 2016). SCT and CHAT encourage engaged critical analysis that supports the development of material and symbolic tools necessary to enact positive change. In this sense, the value of SCT resides not just in the analytical lens it provides for understanding human development but in its capacity to directly impact that development.

Related topics

language and culture; language emergence; language socialization, language learning, and language education; second language acquisition

Further reading

Lantolf, J., Poehner, M. and Swain, M. (2018) *The Routledge Handbook of Sociocultural Theory and Second Language Development*, New York: Routledge. (This edited volume brings together world experts on SCT with chapters on language acquisition, assessment, pedagogy, classroom practice, and teacher professional development.)

Lantolf, J. and Thorne, S. L. (2006) *Sociocultural Theory and the Genesis of Second Language Development*, Oxford: Oxford University Press. (This volume presents a close exegesis of fundamental tenets of SCT and CHAT and provide a comprehensive review of L2 research and pedagogical projects.)

van Compernolle, R. A. (2014) *Sociocultural Theory and L2 Instructional Pragmatics*, Bristol: Multilingual Matters. (This award-winning book outlines SCT approaches for instructional second language pragmatics, emphasizing the importance of explicitly teaching socio-pragmatic concepts to inform pragma-linguistic choices in communication.)

van Lier, L. (2004) *The Ecology and Semiotics of Language Learning: A Sociocultural Perspective*, Boston, MA: Kluwer Academic Publishers. (Van Lier insightfully combines Vygotskian theory with detailed discussions of semiotics and ecological approaches to language and L2 development.)

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Sociolinguistics for language education

Petros Karatsareas

Introduction

Sociolinguistics studies how language and society are intertwined. Trudgill (2000: 2) points out two easily ascertainable facts that evidence the fundamentally social dimension of humans' language behaviour: first, that language is used to establish social relationships between people, and, second, that language can convey information about speakers. Sociolinguistic research rests on the recognition that language is almost never used in a social vacuum. Even in seemingly solitary linguistic practices, such as when one writes a piece of text or records a sound clip that is not meant to be read or heard by anyone other than its creator, the ways in which language is put to use reflect people's previous social interactions with others and their life courses more generally. Language is therefore shaped by society and, in turn, shapes society itself. Layered manifestations of language (features, forms, structures, registers, discourses) and their complex interweavings in everyday instances of communication index differences between (groups of) people articulated on the basis of non-linguistic characteristics, such as race, gender, age, ethnicity, socioeconomic status, religion, and others. All too often, linguistic means are mobilized to reinforce and reproduce structures of social inequality on both a micro and a macro level.

This chapter discusses some recent advances in sociolinguistics that pertain to language education. Educational settings (mainstream schools, complementary schools, universities, and other institutions where people teach and learn languages) are important sites where people of different ages, life courses, and with different goals become socialized in a broad range of linguistic practices both within and outside contexts of formal teaching. More importantly, educational settings play a major role in the construction and reproduction of ideas about language, including hierarchical and marginalizing beliefs that promote specific language varieties and stigmatise others. They are also environments where people develop key skills and competences in literacy and oracy. In what follows, I offer some historical perspectives on this area, focusing on the so-called Ebonics controversy as a critical moment in the history of sociolinguistics in language education. I move on to formulate some central questions for current scholarship in the field and review research that explores how ontological views of language are being transformed through an approach that conceptualizes languages as repertoires of

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linguistic resources. I draw empirical evidence from recent works on language policing in England and language policy reform in Cyprus. I present methods that have been proven fruitful in exploring sociolinguistic topics in educational settings, offer some recommendations for practice emphasizing the importance of researcher positionality and reflexivity, and identify two avenues for future work in the field: decolonizing (socio)linguistics and language education and developing programmes for educating educators and their learners on elements of (socio)linguistics.

Historical perspectives

It was not long after Labov published his seminal studies on Martha's Vineyard (Labov 1963) and New York (Labov 1966) that scholars in the emergent field of sociolinguistics, including Labov himself, began to explore the implications of findings around language variation for language education and pedagogy, more generally. The notions of overt and covert prestige, the marking of particular linguistic forms as belonging to specific standardized and non-standardized varieties and/or hierarchically organized registers and contexts of use, and the – observed or assumed – associations between patterns of linguistic variation and non-linguistic characteristics of speakers provided the theoretical grounds for new approaches to educational challenges. Particular attention was given to the achievements of African American pupils in mainstream schools in the United States of America and to the attitudes of teachers towards pupils' use of (features of) African American Vernacular English (AAVE) in the school context. Labov (1969) made the case for African American pupils' language to be examined on the basis of (socio)linguistic considerations and not in terms of discourses of deficit or verbal deprivation. He also argued that speaking a non-standardized variety was not an obstacle to learning. Williams (1976) found that both black and white teachers judged AAVE-speaking pupils negatively, although white teachers made a stronger link between standardized language, linguistic effectiveness, and social status than black teachers.

Arguably, the most emblematic historical event in this connection was the so-called Oakland Ebonics controversy. On 18 December 1996, the School Board of Oakland, California, passed a resolution that officially recognized AAVE, which it labelled 'Ebonics', 'black sounds', 'Pan-African Communication Behaviors', or 'African Language Systems', as the 'genetically based' language of African American pupils. In an amended version dated 15 January 1997, AAVE was presented as a dialect of English with origins in West and Niger-Congo languages (Oakland School Board Resolution on Ebonics [Original Version] 1998; Oakland School Board Resolution on Ebonics [Amended Version] 1998). The resolutions sought to ascribe positive values to AAVE with a view to facilitating the development of Standard English skills in African American pupils. The application of bilingual or second language learner principles, whereby language teaching would build on pupils' knowledge of and competences in AAVE in an equal, respectful, and embracing manner, was considered key in improving their performance and attainment. The passing of the resolutions became widely known in the USA, sparking a major public debate with racist undertones. People objected to the recognition of AAVE as a language in its own right and/or the idea that it must be valued not only as a resource for learning but also as a way of speaking more generally. Reaction even took legal forms with judicial attempts to declare as illegal the recognition of AAVE as a language and to defund local administrations that would support such recognition (Baugh 2000; Ramirez et al. 2005). The backlash prompted the Linguistic Society of America to adopt and publicize its own resolution. In the short text drafted by John R. Rickford, the LSA (1997) confirmed the naturalness and systematicity of AAVE, categorically rejected demeaning characterizations like 'lazy' or 'broken

English', emphasized the benefits of both protecting vernacular varieties and developing skills in Standard English, and referenced evidence that supported the pedagogical decision of Oakland School Board to use AAVE as a vehicle towards developing literacy skills in Standard English.

Critical issues and topics

The Ebonics controversy demonstrated that understandings of language that emerge from sociolinguistic research can and must be brought to bear on the theoretical aims and principles as well as the methods and practices of (language) education. In its specific sociohistorical and sociolinguistic context, the controversy essentially revolved around a set of questions that are not only broad but also remain at the core of current scholarship in the field:

- What counts as a language, and what counts as a dialect? Are the differences and the relation between the two important, and, if so, for whom and for which purposes? Are these terms and the binary contrast that they imply the best way to understand what speakers do when they use and learn language including in formal educational settings?
- Are there legitimate and, therefore, also illegitimate speakers of a language? If so, who is and who is not a legitimate speaker of a language? What criteria are used to make decisions about speakers' linguistic (il)legitimacy, who applies them, and for which purposes? What form do these processes take in language education?
- What are the aims of language education? How do these aims vary across different contexts and settings? What types of linguistic skills and competences should formal education seek to develop in language learners, and what is the best way to achieve this? What approach should educational systems take towards learners with varied life courses, language socialization experiences and therefore varied sociolinguistic profiles and pedagogical needs?
- What are the best ways to bring about positive change in policy and practice such as relates to the teaching and learning of language? How can changes in language education become relevant for educational policy more widely and language policy outside settings of education?
- How can sociolinguists and language educators work together towards the benefit of language learners? What stances and actions should sociolinguists take in the face of challenges they observe in language education and especially when asked to contribute evidence and sociolinguistic expertise?

An important aspect of the Ebonics controversy that must not be sidestepped and remains current concerns race. Baugh (2000: 13) sees the controversy as one episode in the 'long history of race-based inequality' in the USA, one which reflects the 'linguistic legacy of American slavery within the context of providing equal educational opportunities to all children'. It is therefore important, as the field of language and education moves forward, to continue decentring and decolonizing approaches to language teaching and learning. This means no longer prioritizing forms and uses of language imbued with senses that hierarchise groups of people and their communicative practices based on views of the world that developed out of colonialism. As Hilliard (1995: xiv) notes, 'race, minority status, socioeconomic status, and other variables are not factors that predict what students can learn. More likely than not, they predict how schools will treat children'. The onus, therefore, falls on educators and policy-makers to change this treatment, informed by ontological, epistemological, and methodological advances in sociolinguistics.

Current contributions and research

Perhaps the most well-known sociolinguistic dictum is Max Weinreich's מיט אַן אַרמיי און פֿלאָט אַ שפּראַך אין אַ דיאַלעקט, *a schprach is a dialekt mit an armej un flot*, 'a language is a dialect with an army and navy' (1945: 13). It is most commonly cited by linguists to argue that the distinction between what people call a language and what they call a dialect is not based on objective linguistic criteria but, rather, on unequal relations of power and prestige. Weinreich's metaphor suggests that all that exists are clusters of linguistic varieties defined in terms of a range of social and geographic factors, which may be more or less similar to one another. Of these, one particular variety is elevated to the status of 'the language' through standardization, which furnishes that variety with symbols of power (a writing system, official status, codification – Weinreich's army and navy). As soon as 'the language' is in place, all other varieties in the cluster are labelled 'dialects' and become associated with a host of negative, non-linguistic attributes (lower socioeconomic status, lower level or lack of education, impoliteness, rurality, backwardness). The dictum encapsulates the idea that the hierarchical organization of linguistic varieties is subjective and the result of unique configurations of social circumstances. It therefore essentially promotes principles of linguistic equality and, by extension, equality between speakers of different varieties that may or may not be standardized. That notwithstanding, Weinreich's adage rests on an ontological perception of linguistic varieties – be they labelled 'languages' or 'dialects' – as whole, concrete, and bounded systems of communication that can be identified and given names by linguists such as Tibetan, siSwati, Dari, Ivorian French, or Multicultural London English.

Current, especially critical, sociolinguistic approaches have moved away from this thinking. Building on early work by Gumperz (1964) and advances in the study of stratified dialect and creole continua (Stewart 1965; Bickerton 1975), scholars including Heller (2007), Blackledge and Creese (2010), Blommaert (2010), Busch (2012, 2017) Blommaert and Backus (2017), and García and Li Wei (2014) conceptualize languages as consisting of complex repertoires of resources that speakers employ as social actors in situated interactions in order to make meaning, construct and project their identities, and position themselves socially and contextually as they interact with other speakers. Repertoires encompass competences in all the 'languages', 'dialects', 'accents', varieties, registers, and styles that speakers acquire and develop at different spatial and temporal points along the course of their lives. There are no fixed boundaries within and between repertoires. Resources and competences are fluid and porous and can change over time. Speakers are therefore able to draw on them in a dynamic, free, and unified way, creatively combining elements that in other approaches would have been analyzed as belonging to different bounded linguistic entities ('languages' and 'dialects'), resulting in the mixing of distinct codes. Resources, however, are socially distributed in uneven ways, and their uneven distributions are shaped by social, political, and economic processes reflecting unequal relations of power between different (groups of) people. Discourses inscribing different amounts of value (or lack thereof) to particular linguistic forms and practices remain key in these processes, and the analysis of these continues earlier sociolinguistic tradition around language (in)equality.

This way of looking at language has challenged fundamental linguistic notions including the distinction between monolingualism and multilingualism and how the two are relevant for language education. Traditionally, prototypical speakers were portrayed as monolingual in the sense that they acquired and used a single and unified language throughout their lives. People who acquired and used two or more languages were considered exceptional, and there was considerable theoretical and empirical debate around defining who counts as a

bi-/multilingual speaker (Grosjean 2006; Li Wei 2007). Li Wei, in contrast, proposes that ours is an era of post-multilingualism,

> where simply having many different languages is no longer sufficient either for the individual or for society as a whole, but where multiple ownerships and more complex interweaving of languages and language varieties, and where boundaries between languages, between languages and other communicative means and the relationship between language and the nation-state are being constantly reassessed, broken and adjusted. No single nation or community can claim the sole ownership, authority and responsibility for any particular language and no individual can claim to know an entire language, rather bits of many different languages. What is more, the association between a language and a nation or a community can change over time, just as an individual can also give up a language and adopt another.
>
> *(2018: 22)*

By moving beyond the distinction between a 'language' and a 'dialect' and by encompassing registers, styles, and other semiotic resources within linguistic repertoires, all speakers can be considered multilingual in principle as they draw on varied sets of resources in order to communicate. This is a proposal that may run counter to educators' perceptions of the people they teach and of themselves. Iversen (2020) found that pre-service teachers in Norway positioned themselves as monolingual speakers of authentic Norwegian even though they spoke English and routinely used distinct Norwegian varieties, including the two written standards – Bokmål and Nynorsk – as well as other regional varieties. In their narratives, teachers associated multilingualism with speaking 'other languages' and 'broken Norwegian' and linked multilingualism with problematic behaviour in school on the part of pupils with a migration biography. Similar discourses have been documented in the UK. Jaworska and Themistocleous's (2018) corpus study showed that British media presented multilingualism as an educational opportunity when it was linked with prestigious languages like French and Spanish but as an educational problem when it was linked with immigration. In one notable example, in February 2019, the BBC reported the story of an assistant head teacher at a Birmingham school, who was shortlisted for a global teaching prize worth one million US dollars. The nomination followed a row over the teaching of antihomophobic material around LGBT rights and sexual identity. In describing the geographical, demographic, and social context of the school, the article wrote, 'Mr Moffat was commended for his work in improving opportunities for pupils in a deprived part of Birmingham, in a school where most are from Muslim families and many speak another language at home' (Coughlan 2019), thus creating a link between multilingualism, deprivation, and Muslim religion even though the incident was not shaped by teachers', pupils', or parents' language(s) in any significant way.

It would be wrong to assume that linguistic hierarchization in education only targets linguistic varieties that are perceived as 'foreign' and are associated with migration and other forms of transnational mobility. There is a long tradition of research on how formal educational systems around the world systematically promote standardized varieties and stigmatize non-standardized varieties of the same 'language' – that is, parts of the linguistic and communicative repertoires of pupils who are perceived as monolinguals and 'native' to the nation-state (Cameron 1995; Crowley 2003; Adger et al. 2007; Lippi-Green 2012). A recent body of work by Cushing (2019, 2020a, 2020b, 2020c, 2020d, 2021) has documented the multiple ways in which the language of pupils in England is delegitimized in mainstream schools through strict policies and practices of language policing. Cushing shows how operating in a competitive

and marketized educational environment that ranks schools and pits them against one another based on the results of government inspections drives school managers and teachers towards adopting, promoting, and enacting prescriptive language ideologies, which often stem from government policy documents such as *Teachers' Standards*. Such processes have been compounded in recent years by changes in the national curriculum, which place a large amount of emphasis on the teaching and assessment of grammar and on upholding of 'correct' use of Standard English on the part of both pupils and teachers. In some cases of local school policy, speaking Standard English is listed alongside embodied behavioural requirements such as being dressed appropriately and not chewing gum, while teachers are explicitly asked to show zero tolerance towards the use of 'slang' by pupils on school premises. Crime metaphors, such as 'cracking down on rule breakers', 'banned words', and 'word jails', are used to regulate students' linguistic repertoires, which Cushing considers a form of linguicism in the sense of Skutnabb-Kangas (1988: 13): 'ideologies, structures and practices which are used to legitimate, effectuate and reproduce an unequal division of power and resources (both material and non-material) between groups which are defined on the basis of language'. In a related piece of research, Cushing et al. (2021) showed that comparable language policing policies and practices are found in complementary schools – that is, schools that teach language and elements of cultures to ethnolinguistically minoritized pupils of migrant origin. According to the authors, this suggests that multilingual pupils in England are exposed to strong prescriptivist discourses across the full range of their educational experiences.

Cushing (2019) found that some school pupils in England conceptualize grammar as a list of rules that have 'right' or 'wrong' answers, a view that is removed from the way language is used in real-life interactions and with limited applicability to critical reading or creative writing. In a recent policy paper, Ioannidou et al. (2020) make the case that speakers of non-standardized and other stigmatized linguistic varieties bring into the learning process alternative forms of linguistic and semiotic capital, voices, and knowledge(s) produced outside hegemonic paradigms, which must be acknowledged, valorized, mobilized, and integrated into pedagogical policy and practice. They argue that approaches that take the entire linguistic repertoires of pupils into account can foster their critical literacy and critical language awareness, strengthen their confidence, and increase their sense of ownership in their language learning. These ideas underpinned the production of a groundbreaking National Curriculum for Language, which was adopted in 2010 by the Ministry of Education and Culture of the Republic of Cyprus for use in the schools that are under the control of the Republic in the southern part of the island (Hadjioannou et al. 2011). The curriculum aimed to draw on pupils' knowledge of Cypriot Greek, the non-standardized variety of Greek spoken in Cyprus, in facilitating the acquisition of and the development of skills in Standard Greek, the standardized variety that is the official medium of education in Greek-speaking Cyprus. It moved away from compartmentalizing conceptualizations of the two varieties and instead treated them as naturally co-occurring in hybrid texts produced through forms of language alternation and translanguaging. In this way, it sought to tackle negative attitudes towards the Cypriot variety and to make students more generally aware of the ways in which language can be used to construct political and cultural values, to perpetuate social stereotypes, but also to reverse relations of power and inequality among social groups. Unfortunately, the curriculum was implemented for a very short time. In 2013, after a change in government, the curriculum was put under review. In 2015, it was officially withdrawn, and language education reverted to the 1999 Greek Programme of Studies for Language, which does not include the teaching of language variation (Tsiplakou et al. 2018).

Main research methods

Surveys can give a good quantitative sense of the social dimension of language in educational settings. Calafato (2020) collected responses from a large sample of 460 language teachers from Norway and Russia through an online questionnaire, seeking to explore respondents' views on the benefits of multilingualism as they relate to the teaching profession and multilingual teaching practices. The results showed that, while teachers believed that learning multiple languages was beneficial for both their learners and themselves as teachers, they had mixed views about which language(s) is/are to be used in language learning lessons and how multilingualism could work in practice. Works such as McLelland's (2017) history of teaching and learning languages other than English in the UK or indeed Gallagher's (2019) study that focuses on Early Modern England can be useful in positioning contemporary sociolinguistic investigations against a social historical backdrop.

Ethnographically oriented methods, including the observation and qualitative analysis of interactions between different social actors (teachers, pupils, school managers, parents) both within and outside classrooms (for example, during meetings, celebrations, and other school events), have proven particularly fruitful in gaining valuable insights into the social complexities of language learning. Blackledge and Creese (2010) analyze recordings of interactions between teachers and pupils during language teaching in complementary schools in four UK communities, captured by audio recorders and lapel microphones. They show how teachers use translanguaging practices to create links with the social, cultural, community, and linguistic domains of their and their pupils' lives; see also Creese and Blackledge (2010, 2015). Different types of interviews (one-to-one interviews, focus group interviews, semi-structured interviews, autobiographical interviews, reflective interviews) are also widely used. Dołowy-Rybińska (2021) interviewed German-speaking pupils in eastern Germany about their attitudes towards education in Upper Sorbian, a Slavic variety with an official minority status in the state of Saxony. Interviews revealed complex tensions between learners who are perceived as 'legitimate' speakers of Sorbian and learners who are classified as 'new' speakers and ethnically based distinctions alongside notions of Germanness and Sorbianness. In addition to observations and interviews, ethnography can further include the study of the linguistic landscapes of educational institutions. Pakarinen and Björklund (2018) examined the school-scape of a primary school in the west of Finland that offers mainstream Finnish education and Swedish immersion education. The authors analyzed photographs of classrooms, corridors, staircases, and foyers showing signage in different languages. They also conducted focus group interviews with pupils, discussing multilingual signage as they walked inside the school building. The findings showed that the school-scape was dominated by Finnish and Swedish, while other languages spoken by pupils were absent. Pupils co-created inscriptions in the two dominant languages and projected multilingual identities in the process.

The examination of policy documents, teaching materials, and samples of student work through a sociolinguistic lens either in real-life contexts or as part of targeted pedagogical interventions is another particularly fruitful method. Karlsson and Karlsson's (2020) study looks at how language policy documents in Swedish higher institutions ascribe value to Swedish, English, and other languages for purposes of administration and management in the context of Sweden's 2009 Language Act, which designates Swedish as the principal language of public administration in the country. The authors coded 18 policy documents produced by universities and found that policies were geared towards institutional monolingualism, treating Swedish as the default and only allowing the use of other languages in meetings on a temporary basis, such as in the presence of non-regular participants. These policies contrasted with the highly

internationalized character of Swedish universities, and Karlsson and Karlsson argued that they might result in glass ceilings and lock-in effects for academic staff. Krulatz et al. (2018) analyzed lesson planning materials put together by teachers as well as pupils' autobiographical posters and brief personal narratives in a school in Norway as part of a government-funded project that sought to support teachers working with linguistically and socioculturally minoritized pupils. They found that, in their lesson plans, teachers aimed to create diverse opportunities for minoritized pupils to develop their literacy within a framework of respect for cultural and linguistic diversity. Pupils, however, did not use their full linguistic repertoires in their work, using only Norwegian and English, which the authors interpret as evidence that more work is required in order for pupils to feel confident to bring all the languages they use in their lives into the school environment. Tsiplakou et al. (2018) report the results of a pedagogical intervention in Cyprus aimed at honing pupils' awareness of Cypriot Greek phonology and syntax, of the systematicity of Cypriot Greek grammar, and of stylistic and sociolinguistic issues, including through the exploration of the differences between Cypriot Greek and Standard Greek corresponding structures. Pupils were asked to transmediate cookbook recipes into written and oral recipes across different communicative contexts. Results showed that, after some initial awkwardness caused by the task of producing texts in Cypriot Greek, pupils engaged in highly enthusiastic and (self-)reflective group work, evidencing awareness of register variation and its realization through specific structural and lexical choices.

Recommendations for practice

Starting from a positivist point of departure regarding the nature of language variation, early sociolinguistic research identified the methodological challenge that came to be known as the observer's paradox, defined by Labov as follows: 'the aim of linguistic research in the community must be to find out how people talk when they are not being systematically observed; yet we can only obtain these data by systematic observation' (1972: 209). The mere presence of an outsider researcher in settings of interaction where speakers used their 'real' language was not the only barrier that had to be overcome. Scholars were also keenly aware of the unequal power relations between the researcher(s) and the researched, especially in terms of race and socioeconomic status, and of the ways in which these can have an impact on research participants' linguistic productions. In response, Labov and other scholars designed a range of 'methodological machinations' (Trechter 2018: 33) with the aim of eliciting 'authentic' forms of language during sociolinguistic interviews. The idea was to ask participants to talk about topics that would produce strong emotional reactions, thus drawing conscious attention away from the configuration of the interview setting. This famously included the invitation to recall a near death experience, which, as Trecher (2018) points out, raises a number of ethical concerns.

In contrast, (socio-)constructivist and ethnographic approaches to sociolinguistic research place the positionality and reflexivity of researchers centre stage. Recognizing that any type of research that involves people is conducted through series of socially, discursively, and contextually situated interactions (Copland et al. 2015) creates a requirement for 'the relationship between the researcher and those who are researched, and the way in which knowledge is produced – including the forms in which data are represented – . . . to be overtly addressed' (Patiño-Santos 2020: 215) across all stages of the research process. This becomes particularly relevant for research that explores the role people's language plays in shaping their lived experiences of education, especially when these experiences involve stigmatization, marginalization, minoritization, and devaluation of people's linguistic resources and repertoires. Heller et al. (2018: 30–31) offer some useful pointers for researchers who need to be aware that

their own positions and stances, including as insiders and outsiders in the particular research context, create specific affordances and blind spots for research. Specifically, they suggest that researchers must

- be aware of how who they are and the conditions under which they live lead them more easily to some questions than others;
- be aware of the implications of their positionality for the relationships they build with participants and what topics and issues they can explore with them;
- consider the potential impact on other people of asking particular questions, which might be sensitive or make people feel that they have to provide 'right' answers; and
- make clear to participants why they ask the questions they ask and in the way they ask them, and build relationships with participants on this mutually agreed basis.

As Stuart (2017) argues, researcher positionality and reflexivity are not methodological limitations that diminish the value of ethnographic work. Rather, they are part of researchers' analytical toolkit, which contributes to the articulation of unique and powerful arguments and trustworthy insights.

Future directions

Looking to the future, sociolinguistics in language education would benefit greatly from engaging more closely and critically with work that seeks to decolonize the individual disciplines of (socio)linguistics and language education as well as research more generally in terms of both theory and methodology (Tuhiwai Smith 2021). Deumert and Storch (2020) remind us that all linguistic work takes place under specific sociohistorical conditions that (re)present language through specific, Eurocentric lenses (as bounded, structured, recordable, codifiable, tangible, controllable, and improvable) and endorse the expert status of linguists as 'savers' of languages and speakers through discourses of benevolence. In this view of the world, people are rarely recognized as 'speakers of mixed and blended repertoires, as practitioners of linguistic fluidity and survival in a world that is never monolingual' (p. 17). Decolonial approaches therefore align well with repertoire-based approaches to language and language teaching such as those discussed. It is, according to Macedo (2019), in this way that language teachers will be able to democratise their pedagogy and

> unleash the language potential with which, as humans, we are all endowed to create and recreate our own ways of speaking that correspond to our resistance and rejection of any and all forms of colonial subjugation that is still imbued in many foreign language teaching contexts.
>
> *(p. 45)*

Forms of subjugation include the privileged dominance and inherent superiority of (colonial) standard languages, whereas translanguaging and other subordinated linguistic practices fall under the humans' creative linguistic potential.

Another worthwhile avenue for future work is the development of programmes and materials for the training of educators in (socio)linguistics and for the introduction of elements of (socio)linguistics in mainstream school curricula. This includes but extends beyond the acceptance and integration of pupils' full linguistic repertoires in language pedagogy. It involves training teachers on language variation, language ideologies, language attitudes,

and bi-/multilingualism, and how recent theoretical advances in these areas can lead to more inclusive and participatory pedagogical practice, as Matras and Karatsareas (2020) propose. Stollhans (2020) invites curriculum leaders and teachers to 'enlighten learners about the rich and dynamic forms of variation a language entails, which will help them develop intercultural and sociolinguistic competence' and examination boards to accept non-standardized features in tests and examinations, where appropriate. Sheehan et al.'s (2021) study showed that pupils' awareness, metalinguistic knowledge, and skills to describe their understanding of processes of linguistic variation and change, as well as prescriptive versus descriptive approaches to language increased following a targeted classroom intervention. This, as Sheehan et al. cogently argue, can improve pupils' sociocultural, pragmatic, and discourse competences, while at the same time educating them about the harm and prejudices that are implicit in prescriptive attitudes that target non-standardized, stigmatized, and racialized linguistic forms.

Related topics

language teacher education; bilingual and multilingual education; multilingualism; language and migration; language policy and planning; family language policy; linguistic ethnography; ecology of language and language learning; translanguaging

Further reading

Adger, C. T., Wolfram, W. and Christian, D. (2007) *Dialects in Schools and Communities*, London and New York: Routledge. (Intended for a broad range of educational practitioners, early childhood specialists, specialists in reading and writing, and speech and language pathologists, this book provides accessible discussions of major issues that face teachers when they have to manage language variation in the classroom and in other relevant settings.)

Hornberger, N. H. and McKay, S. L. (2010) *Sociolinguistics and Language Education*, Bristol, Buffalo, and Toronto: Multilingual Matters. (A very useful overview of key topics in sociolinguistics addressed to language educators. Topics are organized under seven headings: language and ideology, language and society, language and variation, language and literacy, language and identity, language and interaction, and language and education.)

Lippi-Green, R. (2012) *English with an Accent: Language, Ideology and Discrimination in the United States*, London and New York: Routledge. (A seminal work in the study of language ideologies and language attitudes, language- and accent-based discrimination, and the central role education plays in 'fixing the message in stone'. It covers a broad range of topics, including dedicated chapters on African American Vernacular English, Hawai'ian Pidgin, Asian American English, and Latino English.)

Macedo, D. (2019) *Decolonizing Foreign Language Education: The Misteaching of English and Other Colonial Languages*, New York and London: Routledge. (A topical volume that interrogates colonial methods in language education, which prioritize colonial languages, and white, Western thought. It includes contributions that problematize terms such as foreign, second, heritage, and first language and covers topics such as teacher education, translanguaging, and translingual activism.)

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