Matthew E. Poehner

Educational Linguistics

Dynamic Assessment

A Vygotskian Approach to Understanding and Promoting L2 Development

Springer

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For Priya and Bella

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Part I
Dynamic Assessment – Theory, Models, and Challenges

Abstract The first part of this book offers a detailed account of the genesis of Dynamic Assessment in Vygotsky's work, and the way the idea has subsequently been adopted and reconceptualized by teachers and researchers working with very different populations around the world. As will be made clear, divergent interpretations of Vygotsky's proposals as well as the demands of their particular contexts have led Dynamic Assessment proponents to devise a number of approaches to unifying assessment and instruction as a development-oriented activity. Each has much relevance to the L2 domain but also poses certain challenges, and these are explored as we lay the foundation for the second part of this book, which introduces a model for implementing Dynamic Assessment in the L2 classroom.

Keywords Sociocultural theory, zone of proximal development, classroom interaction, L2 development

Dynamic Assessment posits a qualitatively different way of thinking about assessment from how it is traditionally understood by classroom teachers and researchers. Dynamic Assessment proceeds from an ontological perspective on human abilities developed more than 80 years ago by the renowned Russian psychologist, L. S. Vygotsky. Vygotsky's research into the development of cognitive functions revealed that this process is not a matter of innate abilities growing into a mature state but that it is the emergence of new ways of thinking, acting, and being that result from an individual's engagement in activities where he or she is supported by cultural artifacts and by interactions with others. In this way, the social environment is not merely the stage on which development plays out, it is in fact the driving force of development.

An important consequence of this view of mental abilities is that observing individuals' independent performance reveals, at best, the results of past development. If one wishes to understand the processes of development, to intervene to help individuals overcome difficulties and to support their ongoing development, then mere observation of solo performance is insufficient. Instead, active collaboration

with individuals simultaneously reveals the full range of their abilities and promotes their development. In educational contexts, this means that assessment – understanding learners' abilities – and instruction – supporting learner development – are a dialectically integrated activity. This pedagogical approach has come to be known as Dynamic Assessment.

In the first part of this book, I will consider in detail the genesis of Dynamic Assessment in Vygotsky's work, and the way the idea has subsequently been adopted and reconceptualized by teachers and researchers working with very different populations around the world. As will be made clear, divergent interpretations of Vygotsky's proposals as well as the demands of their particular contexts have led Dynamic Assessment proponents to devise a number of approaches to unifying assessment and instruction as a development-oriented activity. Each has much relevance to the L2 domain but also poses certain challenges, and these will be explored as we lay the foundation for the second part of this book, which introduces a model for implementing Dynamic Assessment in the L2 classroom.

Chapter 1
Introducing Dynamic Assessment

Abstract This chapter situates DA in a broader discussion of the relationship between instruction and assessment. Traditional conceptualizations of assessment are described and it is argued that assessment and instruction are currently conceptualized as existing in a dichotomous relationship. Recent innovations that attempt to bring instruction and assessment closer together are also considered. DA is then introduced and some of the basic concepts that frame the discussions in subsequent chapters are considered. DA is contrasted with more mainstream approaches to assessment in order to bring to light the qualitatively different orientation to assessment and instruction that DA represents.

Keywords Teaching–assessment dichotomy, L2 development, classroom-based assessment, formative assessment

1.1 The Role of Assessment in Second Language Education

Given the varied and often conflicting responsibilities teachers face daily, it is not surprising that assessment issues may prompt an exasperated, "Why do we assess anyway?" Students frequently echo this frustration when they are required to undergo regular assessment in order to demonstrate mastery of content or competency to pass to the next level of instruction. Questioning the purpose of assessment may seem rhetorical since it has become as naturalized a part of everyday life as television and supermarkets. Nevertheless, assessment specialists are increasingly reflecting on the reasons behind specific assessment practices as well as the role of assessment in society. Traditionally, assessment is benignly described as an information-gathering activity (e.g., Bailey, 1996). For instance, McNamara (2004, p. 765) explains that we assess in order to gain insights into learners' level of knowledge or ability. From this perspective, it is difficult to understand why educators, including second language (L2) teachers, often refer to assessment as "a necessary evil." One might imagine that the information gained through assessment procedures would be enthusiastically welcomed, and viewed as an integral component of good teaching. However, the

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proliferation of terms such as "teaching to the test," "narrowing of the curriculum," and "assessment-driven instruction" suggests that assessment is seen as an activity that is distinct from, and perhaps even at odds with, the goals of teaching (Linn, 2000; Lynch, 2001; McNamara, 2001; Moss, 1996). Indeed, Rea-Dickins' research into classroom-based assessment leads her to the conclusion that teachers often feel compelled to choose "between their role as *facilitator and monitor* of language development and that of *assessor and judge* of language performance as achievement" (Rea-Dickins, 2004, p. 253, italics added).

The view that assessment stands in opposition to instruction may be attributed, at least in part, to a growing awareness of the political character of many assessment initiatives. This is especially true in the case of so-called "high-stakes tests," which are typically designed by external agencies, adopted by policy makers and school officials, and imposed upon teachers and learners (Shohamy, 1998, 2001). In the USA, for example, the No Child Left Behind legislation has made obligatory standardized testing a driving force in education. While this initiative does not mandate testing in the area of foreign languages, the recent American Council on the Teaching of Foreign Languages (ACTFL) volume that outlines the organization's vision for language education in the first part of this century ascribes a central role to testing (see Phillips, 2006). The results of high-stakes tests carry considerable weight in discussions of student learning, teacher accountability, and state or national standards. Consequently, test preparation not only becomes an end in itself but it can even supercede other curricular goals and learning objectives (Johnson et al., 2005).

Another factor contributing to the bifurcation between assessment and instruction concerns teachers' lack of familiarity with the theory and principles underlying assessment practices. All too often teachers arrive in their classrooms unprepared for the challenges of developing appropriate assessment instruments, carrying out procedures, and interpreting results (Torrance and Pryor, 1998). Instead, they are armed with an eclectic repertoire of practices (e.g., cloze tests, dictations, group projects, portfolios, quizzes) but without a theoretical understanding to guide their use. In this regard, Edelenbos and Kubanek-German (2004) have proposed the construct *diagnostic competence* to refer to teachers' skill in assessing learners. Their study of classroom-based assessment suggests that not all teachers are equally competent to the task of capturing learners' level of ability. This finding is not surprising when one considers the amount of attention devoted to assessment (relative to other matters, such as curriculum design, learning theories, and teaching methods) in most teacher education programs. In fact, the dichotomy between assessment and instruction is even visible at the level of institutional organization. The *development* of knowledge and abilities falls within the purview of departments such as Curriculum and Instruction or Language Literacy and Education while the *measurement* of learning outcomes is left to departments of Educational Psychology. In applied linguistics, language assessment and pedagogy have emerged as distinct subfields with their own professional journals and meetings. This point is underscored by the revealing title of Bachman and Cohen's (1998) volume that argues for increased communication between researchers in these two areas: *Interfaces Between Second Language Acquisition and Language Testing Research*.

This book is also concerned with the potential relevance of assessment to teaching and learning but conceptualizes their relationship in a manner that differs both epistemologically and ontologically from the perspectives that have come to dominate language studies in the West. In particular, the approach to assessment and instruction described in this book is derived from the Sociocultural Theory of Mind (SCT), as developed by the Russian psychologist L.S. Vygotsky and his colleagues more than 80 years ago. As a result of historical and political circumstances, Vygotsky's work was lost for several decades and has only become widely known among psychologists outside the former Soviet Union during the past 20 years (Van der Veer and Valsiner, 1991). Educational researchers, especially in Europe and North America, are paying increasing attention to the potential of SCT to illuminate processes of cognitive development (e.g., Kozulin et al., 2003; Lantolf, 2000; Wells and Claxton, 2002). Others are less interested in applying the theory as a research lens for understanding educational practices than they are in rethinking those practices (Feuerstein et al., 2003; Lidz and Elliott, 2000). This latter group of researchers has devised a number of methodologies that seek to understand and promote human cognitive abilities and that are known under the general term Dynamic Assessment.

Dynamic Assessment (henceforth, DA) challenges conventional views on teaching and assessment by arguing that these should not be seen as separate activities but should instead be fully integrated. This integration occurs as intervention is embedded within the assessment procedure in order to interpret individuals' abilities and lead them to higher levels of functioning (Lidz and Gindis, 2003, p. 99). The unification of assessment and instruction is grounded in Vygotsky's understanding of development. In SCT, the development of higher forms of consciousness, such as voluntary control of memory, perception, and attention, occurs through a process of internalization whereby these functions initially occur as interaction between human beings but are then transformed into cognitive abilities with the result that "the social nature of people comes to be their psychological nature as well" (Luria, 1979, p. 45). While working out the implications of his theory for education, Vygotsky realized that observing learners engaged in independent problem solving revealed those functions that had already been internalized but indicated nothing about abilities that were still in the process of developing. This means that the scope of individuals' abilities can only be revealed when various forms of support are offered as they struggle with difficult tasks. Moreover, the provision of such assistance simultaneously aids development, and so assessment itself becomes an instructional intervention.

Although there is a robust research literature on DA in psychology and general education (see Lidz and Elliott, 2000 for a review of the work being done), the approach is relatively unknown in second language (L2) studies. To date, few studies have examined L2 performance from a DA perspective, although the growing interest in Vygotskian theory among applied linguists has led to some exploration of how DA principles might be used in L2 contexts (e.g., Kozulin and Garb, 2002; Antón, 2003). In two papers I coauthored with James Lantolf (Lantolf and Poehner, 2004; Poehner and Lantolf, 2005), we proposed a framework for how DA

procedures could be implemented in L2 settings and how the results could be interpreted in a manner consonant with Vygotsky's (1986, 1998) understanding of development. At present, several researchers are pursuing projects following this approach to L2 DA (Ableeva, in progress; Erben et al., forthcoming; Summers, in progress). Although this work is still in its infancy, it has already been met with a good deal of enthusiasm among language professionals. Over the last few years, James Lantolf and I have together and individually delivered a number of lectures and presentations on DA at universities, conferences, and professional development workshops, and these talks have generated much discussion from both applied linguistics researchers and language teachers.

Judging from the reactions DA has received, its appeal cannot simply be attributed to its recent introduction to the field (i.e., its status as "the new thing"). What is it about DA that makes it attractive to individuals with such diverse interests and backgrounds? I believe the answer is that DA promises – and, as I argue in this book, delivers – a great deal to teachers and learners, assessment specialists, and educational researchers. A similar point is made by the well-known psychologist, R.J. Sternberg, and his colleague, Elena Grigorenko, in the introduction to their critical review of DA (Sternberg and Grigorenko, 2002, pp. viii–ix). According to these authors, a dynamic procedure offers all the information that other assessments provide and more. They argue that DA broadens the view of learners' knowledge and abilities and that this consequently enables more valid and appropriate interpretations and uses of assessment results. In addition, Sternberg and Grigorenko believe that DA principles can lead to a "new generation of tests" that "differ not only in minor ways from what we now have, but rather, in fundamental ways" (p. ix). They further suggest that DA offers a theoretically motivated approach to integrating assessment and instruction, something more and more educators feel is important. To this, we might add that DA procedures are crucial to teachers and learner because they provide not only scores or grades, but insights into the depth of an individual's abilities, the causes of poor performance, and specific ways of supporting development.

This book is the first to offer an in-depth discussion of L2 DA. The framework outlined in earlier papers (Lantolf and Poehner, 2004; Poehner and Lantolf, 2005) serves as the basis for many of the ideas and arguments presented here, and some chapters will reference these papers heavily. However, this book provides considerable elaboration of these proposals and supports many claims that are central to DA with examples that were not previously available. Readers will gain an understanding of the theoretical perspective on development that informs DA and the interpretations of this theory that have brought about specific DA methodologies. Recommendations are made for how these DA approaches might be selected and adapted to meet the needs of stakeholders in various L2 contexts. In addition, DA principles are illustrated using interactions from actual dynamic sessions with L2 learners. These examples demonstrate many of DA's potential contributions to L2 teaching, learning, and assessment practices as well as to ongoing discussions of L2 acquisition.

In the remainder of this chapter, I will attempt to situate DA in a broader discussion of the relationship between instruction and assessment. In particular, I will

provide a brief overview of traditional conceptualizations of assessment that have helped to create the dichotomy described above. I will also offer some comments on recent innovations that attempt to bring instruction and assessment closer together. I then turn to DA and introduce some of the basic concepts that will frame our discussion in subsequent chapters. DA will be contrasted with more mainstream approaches to assessment in order to bring to light the qualitatively different orientation to assessment and instruction that DA represents. The chapter concludes with an outline for the organization of this book.

1.2 Contemporary Views on the Relevance of Assessment to Instruction

1.2.1 The Rise of Modern Assessment Practices

To appreciate the radical departure from current understandings of assessment that DA represents, some remarks are in order concerning the privileged status that assessment currently enjoys in much of the world. Interestingly, the preoccupation with assessment – and in particular testing – that seemingly permeates every aspect of modern life is a relatively new phenomenon (see Hanson, 1993; Sacks, 1999). For most of human existence people lived their entire life without ever taking a formal test. With the notable exception of the Chinese civil service exam, which had been in place for some 14 centuries, it was not until the late nineteenth century that assessment emerged as an area of interest for researchers and educators, and the widespread assessments began only in the twentieth century (see Gould, 1996, for a full discussion of the history of testing).

The premier form of assessment is, of course, the standardized test. This approach is characterized by the standardization of procedures and instruments and the statistical analysis of results. Gould (1996) points out that standardized testing became increasingly popular in the 1900s when the USA began using tests of general intelligence to screen immigrants and to evaluate the abilities of Army recruits. Since that time, such tests have gradually come to be used in a variety of other contexts, including educational settings. Sacks (1999) observes that Americans today are subjected to tests throughout their life (usually beginning within an hour of birth) in order to be placed in an instructional program, graduate from high school, gain admittance to a university, prove proficiency in or mastery of a content area, apply for a job, or earn the right to drive a car (p. 35). At the time of writing, the educational landscape in the USA is dominated by debates over the No Child Left Behind initiative, in which testing figures prominently. While critics of this legislation argue that it in fact *augments* inequities among social classes, its proponents insist that testing is necessary for all students to achieve according to their grade level. It would seem that, like it or not, testing is here to stay.

Standardized testing clearly offers several advantages over other forms of assessment. For example, a standardized test can be simultaneously administered to thousands of individuals; individuals can take the test several times; the instruments and procedures can readily be used anywhere in the world, and test scores for individuals as well as entire populations can be compared with relative easy. A further advantage of this approach is that standardization is believed to increase objectivity. That is, great effort is made to ensure that any factors that might obscure the ability being assessed (e.g., allotted time, language in which questions are asked, sequence of items, etc.) are controlled for (see Bachman and Palmer, 1996, for a useful discussion of test design). In this way, one can have confidence that test scores represent a pure, uncontaminated sample of individuals' abilities. To be sure, this *psychometric* approach to assessment is not accidental but is the result of a specific theoretical understanding of abilities. I now turn to this perspective on human mental abilities since, as we will see, it informs not only standardized testing but also most contemporary approaches to assessment.

1.2.2 Making Abilities "Measurable"

Ratner (1997, p. 14) argues that modern approaches to psychological and educational testing are predicated upon a belief that human abilities exist as discrete variables whose presence and intensity can be quantified for measurement. The measurement-focus in assessment can be traced back to the work of German psychologist Wilhelm Wundt at the end of the nineteenth century (see Lantolf, 1999, for a full discussion). Wundt argued that psychology needed to be a separate discipline from philosophy, which was also concerned with the mind. To distinguish the two, Wundt adopted research methods developed in the natural sciences and applied them to the study of mental phenomena. This move was no doubt motivated by a hope that the use of scientific methods would lead to advances in psychology just as they had brought about extraordinary leaps in other fields, particularly physics. However, the physical sciences are concerned with objects and events that are relatively stable, that can be readily modeled using mathematics, and that can be broken down into constituent parts for study. For example, one expects chemical processes such as photosynthesis to occur in the same manner and to respond similarly to the manipulation of variables regardless of whether it is in a lab, forest, or other environment. However, since Wundt's time, there has been an implicit assumption in much psychological and educational research that the same is true of mental abilities. That is, cognitive abilities are believed to exist as discrete traits that individuals possess in varying amounts, and these traits are relatively stable and predictable (Danziger, 1997; Newman and Holzman, 1997).

Elsewhere I have suggested that assessment researchers may be aware on some level that they are operating metaphorically when they speak of individuals possessing certain amounts of intelligence or language proficiency (Poehner, 2007). Nevertheless, this perspective has become so commonplace that its metaphorical

nature risks becoming invisible (Lakoff and Johnson, 1980). The view of abilities as traits one can have in varying amounts has become the normalized way of understanding human cognition, and assessment performance is consequently taken to be a representative sampling of what individuals have "in their head." Importantly, this perspective also explains why solo performance is privileged in most assessments. Allowing any kind of support during an assessment procedure would mean that one could no longer discern individuals' abilities in their "pure" form. Of course, this view has been challenged on a number of grounds. For example, in their criticism of the Oral Proficiency Interview (OPI), Lantolf and Frawley (1988, p. 188) argue that proficiency is not a property of an individual functioning in isolation but emerges from the interaction that occurs between individuals. Their argument receives empirical support from Swain's (2001) study of dialogic interactions between language learners and examiners. Building on the work of Lumley and Brown (1996), she points out that the linguistic features of an examiner's behavior during a proficiency interview can "differentially support or handicap a test candidate's performance" (p. 287). Brown (2003) similarly reports that changing examiners in a language proficiency interview led to divergent interpretations of the examinees' level of ability, a finding she attributes to the examiners' different ways of structuring the exchange, posing questions, and providing feedback. McNamara (1997) has also recognized that the contributions of the examiner during proficiency assessments are integrally tied to the resulting performance. He concludes that assessors should abandon the assumption that proficiency is the cognitive activity of a lone individual functioning in a "curious kind of isolation" (p. 449). Instead, he proposes that "the presence of assistance" can provide valuable insights into an individual's "potential for growth" and should become part of both the assessment procedure and the rating scale (p. 454). To date, this research has had little impact on L2 assessment although it is very much in line with DA.

Before turning our attention to DA, I would like to consider other ways in which researchers have attempted to connect assessment to instruction. In her introduction to a special issue of the journal *Language Testing* devoted to teachers' role in assessment, Rea-Dickins (2004, pp. 250–252) identifies four conceptualizations of the relationship between assessment and instruction. We will consider each of these as they will help to frame our discussion of DA's potential contributions.

1.2.3 Connecting Assessment and Instruction

The first way of conceptualizing a relationship between assessment and instruction that Rea-Dickins discusses has to do with the impact of formal testing on teaching and learning. This phenomenon is generally referred to as the *washback effect* (Cheng, 2005; Cheng et al., 2004). Washback manifests itself predominantly in situations of high-stakes testing, where obtaining high test scores comes to be the goal of education, with the result that the scores themselves are not representative of knowledge or ability in a given domain but rather indicate how well students

have been trained for the test (Alderson and Wall, 1993; Bailey, 1996). Some authors, such as Fredricksen and Collins (1989), have suggested that test impact could be good or bad. Describing what they term a test's *systemic validity*, they argue that a test has high systemic validity if it promotes favorable instructional practices and low systemic validity to the extent that it inhibits learning (p. 28). While one can appreciate this perspective, it is nevertheless the case that the social value placed on attaining high tests scores is sometimes so great that tests themselves actually stand in the way of instructional practice. The relationship posited between assessment and instruction is essentially antagonistic; they are separate activities with distinct goals and methods.

Washback studies, in fact, form part of a larger trend in assessment research that is concerned with the power of high-stakes assessment. Messick (1988), for example, warns that more attention needs to be paid to the social consequences of introducing a test into an existing instructional setting and accepting the resulting scores as the sole indicator of learners' abilities. In applied linguistics, a new area of research known as Critical Language Testing (CLT) has recently emerged. Researchers working in CLT are interested in the ways in which assessment (especially formal tests) is linked to political ideologies and is used for purposes of gatekeeping, control, and discrimination (e.g., Shohamy, 1999, 2001; Spolsky, 1997).

While washback studies investigate the impact of assessment on instruction, other researchers reverse this relationship and assign the leading role to instruction. In this approach to linking assessment and instruction, assessment procedures are not developed a priori and then imposed upon institutions and classroom teachers but instead emerge from a grounded analysis of instructional interactions and pedagogical practices as observed in the classroom. This approach, which for convenience will be referred to as *curricular-driven assessment*, enables classroom teachers to assume a more agentive role in determining assessment practices. Rea-Dickins (2004, p. 251) explains that an added advantage of curricular-driven assessment is that it lends itself well to evaluations of program effectiveness. In other words, because the assessments are derived from curricular objectives, students' assessment performances can be taken as an indicator of how well those objectives are being met. Given the current interest in teacher and school accountability in many countries, this feature is sure to appeal to program administrators and policy makers. Nevertheless, while assessment and instruction may be linked at the level of program objectives, they are not integrated.

A third approach to bringing assessment and instruction together involves establishing pedagogical goals and then devising parallel instruction and assessment activities. Rather than imposing an assessment on an extant educational context or using classroom practices to generate assessment procedures, instruction and assessment from this perspective should be developed in tandem. The *task-based framework* is an excellent example of such an approach. In task-based pedagogies, both instruction and assessment are modeled after the kinds of communicative activities that characterize everyday life (Chalhoub-Deville, 2001; Skehan, 2001; Wiggelsworth, 2001). Learning tasks are intended to simulate real-life communicative interactions that promote students' "individual expression" (Chalhoub-Deville,

2001, p. 214). These types of interactions are also used in assessment situations, where it is argued that their authenticity allows examiners to make generalizations about learners' abilities that extend beyond the "learning/testing situation" and that predict how they will perform in other settings (ibid.). In both task-based learning and task-based assessment, the move away from traditional paper-and-pencil tests that are divorced from both teaching and from life outside the classroom "give[s] test-takers the opportunity to utilize their background knowledge and experiences" in order "to be active and autonomous participants in a given communicative interaction" (ibid.).

While the task-based framework represents an important step toward integrating assessment and instruction, it is clear that the two remain separate activities, albeit not as sharply dichotomized as in more traditional pedagogies. For example, Candlin (2001) reports on the implementation of a Target-Oriented Curriculum (TOC) in a Hong Kong primary school. This curriculum consists of various learning targets that have been used as the basis for real-life communicative tasks that learners engage in during class. While similar tasks are used to assess learning, consider the following account of learning and assessment in this approach: "the major difference between assessment tasks and learning tasks is that in learning tasks, teachers need to conduct appropriate pre-task, while-task and post-tasks activities to ensure that learners can complete the tasks satisfactorily" (Candlin, 2001, p. 237). This description is revealing in that it betrays an enduring orientation toward assessment that has been carried over from standardized tests and that is perhaps the primary source of difference between assessment and instruction: the tester's goal of controlling all variables that might jeopardize an accurate measurement of an individual's abilities, understood to be represented by his solo performance. That is, the very kinds of interactions, feedback, supporting materials, and assistance that usually characterize good instruction, and in the task-based framework are necessary to help learners complete a given task, are not permitted if that same task is used for assessment purposes because they would obscure the learners' "true" abilities. While this concern is understandable given the perspective described earlier that locates abilities "in the head" of the individual, it nevertheless creates a wall between assessment and instruction.

The final perspective on the relationship between assessment and instruction discussed by Rea-Dickins attempts to break through this wall by carrying out assessments during the course of instructional activities. This "instruction-embedded" assessment is usually carried out by classroom teachers in order to fine-tune instruction to learners' needs, and as such represents a type of *formative assessment*. Formative assessment refers to assessment practices intended to feed back into teaching by providing important information regarding learners' strengths and weaknesses that can be used for subsequent instructional decisions. As Bachman (1990, pp. 60–61) explains, formative assessment is usually contrasted with *summative assessment*, or assessments that occur at the end of an instructional period and are intended to report on learning outcomes. Both summative and formative assessments are concerned with learners' futures albeit in very different ways. Summative assessments report on individuals' past achievements in order to make

decisions about their future possibilities, including promotion to the next level of study and certification of competence required for graduation or employment. Formative assessments, on the other hand, are more directly connected to teaching and learning.

To be sure, many classroom-based assessment practices may be described as formative. Ellis (2003) observes that some approaches to formative assessment are, in fact, modeled after standardized tests. He refers to quizzes and chapter tests designed and implemented by classroom teachers as *planned formative assessments* (p. 312). While such assessment instruments are not generally subject to the statistical rigors required for standardization, they mirror their more psychometric counterparts both in terms of administration procedures and interpretation of performance. For example, interacting with students during a test, providing feedback on performance before test-takers have finished, and modifying the test administration procedure for individual learners are usually considered unfair because the resulting score no longer represents a learner's solo performance. Ellis goes on to describe classroom assessments that are embedded in instructional activities as *incidental formative assessments* (2003, p. 314). Incidental formative assessments no doubt blur the line between instruction and assessment. However, Ellis notes that these practices tend to be focused on helping learners get through the task at hand rather than promoting their development (p. 315). More will be said about this in subsequent chapters, but for now it is important to appreciate that task completion and learner development are not synonymous. Indeed, most teachers' experiences attest to this (many of us have experienced frustration when, after walking our students through an activity and providing hand-over-hand support, they appear no better off than before). The hallmark of Vygotskian approaches to education is that instruction – and learning – assumes a leading role in development. That is, unlike many leading theories of education (including Piaget's), Vygotsky argued that instruction should not wait for developmental readiness but, rather, development occurs through participation in activities that are beyond learners' current level of ability. The total integration of assessment and instruction can only be achieved when learner development becomes the goal of all educational activities, and this is the major contribution of Dynamic Assessment.

1.3 Assessment and Instruction from a Vygotskian Perspective

1.3.1 Integrating Assessment and Instruction

As stated earlier, the key to a monistic view of assessment and instruction is providing learners with mediation, or appropriate forms of support, in order to simultaneously understand and promote their abilities. Sternberg and Grigorenko (2002, pp. viii–ix) observe that for some time what has passed for innovation in assessment practices really amounts to "cosmetic" changes to instruments and procedures, such as computerizing a traditional paper and pencil test or conducting oral interviews

in an online format. DA, in their view, represents a paradigm shift toward a new philosophy of assessment that refocuses assessment on helping individuals develop through intervention. They distinguish DA from all other forms of assessment, which, like other DA researchers, they term *static assessment*. Sternberg and Grigorenko characterize static assessment as follows:

> [T]he examiner presents items, either one at a time or all at once, and each examinee is asked to respond to these items successively, without feedback or intervention of any kind. At some point in time after the administration of the test is over, each examinee typically receives the only feedback he or she will get: a report on a score or set of scores. By that time, the examinee is studying for one or more future tests. (p. vii)

The authors then describe DA as an approach that:

> takes into account the results of an intervention. In this intervention, the examiner teachers the examinee how to perform better on individual items or on the test as a whole. The final score may be a learning score representing the difference between pretest (before learning) and posttest (after learning) scores, or it may be the score on the posttest considered alone. (Ibid.)

Some mainstream assessment researchers have understandably objected to such classifications. Snow (1990), for example, argues that use of the terms "static" and "dynamic" suggest the inherent superiority of the latter. Moreover, it is important to realize that many types of assessment, while not DA, do not match Sternberg and Grigorenko's description of static assessment. For example, portfolio assessments typically include an interview stage during which learners are given feedback about their work. Interaction between examiners and examinees is also sometimes permitted in performance testing and, as described above, is an essential part of incidental formative assessments. It is perhaps more accurate to distinguish "dynamic" from "non-dynamic" assessments, keeping in mind that both these terms cover a range of practices. Specifically, non-dynamic assessments (NDA) constitute a continuum that reflects the varying degrees to which feedback is included in the procedure, with static assessment representing one end and incidental formative assessment falling near the other end.

As explained later in this chapter, DA methods can also be placed on a continuum according to how they conceptualize mediation. Some types of DA standardize mediation while others take a more flexible approach to examiner–examinee interactions. Importantly, DA and NDA cannot be placed on a single continuum because they differ both ontologically and epistemologically. NDA conceives of assessment and instruction dualistically and is intended to profile, or even measure, abilities *in their current state*. DA offers a monistic view of assessment and instruction that focuses on *developing abilities through intervention* (Lidz, 1991, p. 6). These differing philosophies have profound implications for assessment practice (Lidz and Gindis, 2003). Three fundamental and interrelated differences between DA and NDA can be discerned: the view of abilities underlying the procedures, the purpose of conducting the assessments, and the role of the assessor. Each of these is discussed below. Of course, it should be clear at this point that DA and NDA, as the terms are used in this book, refer not to assessment *instruments* but to administration *procedures*; any assessment can be conducted in a dynamic or non-dynamic fashion.

1.3.2 Dynamic Assessment of Dynamic Abilities

Lidz and Gindis (2003, p. 100) point out that for Vygotsky, abilities are not innate but are emergent and dynamic. This means that abilities must not be considered stable traits that can be measured; rather, they are the result of an individual's history of social interactions in the world. Through participating in various activities, and through being mediated by those around us, we each come to master our cognitive functions in unique ways. As will be described in subsequent chapters, DA procedures have revealed that many individuals thought to have a *biological* impairment were in fact *culturally* impaired in that they had received an insufficient amount and kind of mediated experiences (Feuerstein et al., 1988). Importantly, cognitive abilities in this view are amenable to change, and much DA research has concentrated on exploring the modifiability of learners during an assessment procedure, sometimes with startling results.

In keeping with this understanding of abilities, assessment procedures take on a new purpose in DA. Following Vygotsky (1998, p. 202), DA seeks to diagnose abilities that are fully matured as well as those that are still in the process of maturing. Vygotsky argued that traditional forms of assessment report on only fully matured functions, the products of development, and consequently reveal little about the process of their formation. An assessment that targets maturing abilities allows for cognitive functions to be observed while they are still forming and offers the possibility of intervening to promote the development of certain processes or to remediate functions when problems occur (Vygotsky, 1998, p. 205). As Lidz and Gindis (2003) observe, in DA

> [A]ssessment is not an isolated activity that is merely linked to intervention. Assessment, instruction, and remediation can be based on the same universal explanatory conceptualization of a child's development (typical or atypical) and within this model are therefore inseparable. (p. 100)

This inseparability of assessment and instruction makes DA difficult for many researchers and practitioners to conceptualize. Indeed, the dualistic understanding of assessment and instruction is so well entrenched that even the possibility of a test-taker learning during an assessment is seen by test designers as a problem that must be controlled for: a case where an individual performs better on later test items than on earlier ones is described in the assessment literature as "instrument decay" and as a problem for test reliability since the traits the test is intended to measure are a moving target (see Glutting and McDermott, 1990, p. 300 for a full discussion).

DA's goal of understanding the development of cognitive functions through intervention requires that the role of the examiner be reconceptualized. Because SCT maintains that the development of the uniquely human, higher psychological functions occurs through social interaction, DA researchers (e.g., Feuerstein et al., 1979), following Vygotsky, have postulated that collaboration with the examinee is crucial to leading and observing development. Vygotsky (1978, p. 86) defined the difference between individuals' unassisted and assisted performance as their *zone*

of proximal development (ZPD), asserting that the level of performance they are able to reach presently with assistance is indicative of their future unassisted performance. In order to have a complete picture of individuals' abilities, it is necessary to collaborate with them during the completion of assessment tasks, extending independent performance to levels they could not reach alone. In DA, the examiner–examinee relationship is thus transformed, with the examiner intervening during the assessment. The "conventional attitude of neutrality" characteristic of NDA "is thus replaced by an atmosphere of teaching and helping" (Sternberg and Grigorenko, 2002, p. 29). Indeed, some DA researchers capture this new relationship by replacing the terms *examiner* and *examinee* with *mediator* and *learner*, a convention that will be followed in this book. The mediator offers some form of support to the learner, ranging from prompts and leading questions to hints and explanations. In this way, DA researchers can understand not only individuals' present abilities but also their potential future abilities and, importantly, can help them realize that future.

1.3.3 Constructing a Future Through Intervention

Reuven Feuerstein, a leading DA researcher, charges that testing practitioners are often all too eager to accept learners' present level of functioning as an absolute indicator of their potential future abilities, not taking into account that these abilities can be changed (Feuerstein et al., 1988, p. 83). In many ways, Feuerstein may have had Vygotsky's concept of the ZPD in mind when he proffered this criticism, since Vygotsky understood the future in a radically different way from how it is seen in NDA. Valsiner (2001) provides a useful means of conceptualizing this difference in his review of three general perspectives on the future that characterize research in developmental psychology. In the first perspective, embraced by proponents of innatist theories of mind, the future is uninteresting because it is assumed that humans are atemporal beings who mature rather than develop. In the second model, which Valsiner calls a *past-to-present* understanding of the future, researchers acknowledge "[T]he role of the past life history of the organism in leading to its present state of functioning" (p. 86). Development occurs in a lock-step fashion on its way to some fixed end point. According to Valsiner, the future is predicted "*post factum* – when it already has become present" (Valsiner, 2001, p. 86). The future is assumed to be a smooth continuation or extension of the past, with the learner moving along a given trajectory and not deviating from it. Piaget's theory of cognitive development is an excellent example of this past-to-present model of development. In the L2 domain, Lantolf and Poehner (2004, p. 52) point out that Krashen's morpheme-order hypothesis also follows this model of development, with language learners passing through a series of fixed stages en route to a final "mastery" stage. Vygotsky's understanding of the ZPD, however, fits with Valsiner's third conceptualization of the future, a *present-to-future model*, where development emerges in novel ways that cannot be predicted on the past alone. Concern is with the "process

of the present (actuality), on the basis of anticipation of immediate future possibilities and through construction of reality out of these anticipated possibilities" (Valsiner, 2001, p. 86). By present, or actual development, Valsiner, echoing Vygotsky, means the person's past development as it is brought into contact with the future. Unlike the past-to-present understanding of the future, a present-to-future model predicts the future *not* a priori but on the basis of concrete mediated activity.

In the context of DA, predictions of future performance are made not on the basis of the individual's current solo performance but instead take account of the kinds and amount of mediation required and learners' responsiveness to this mediation. Models of DA that take seriously Vygotsky's work on the ZPD also insist that it is not only improvement within the assessment context that is of interest but actually cognitive development that extends beyond a given pedagogical task (Poehner, 2007). Development, then, does not have an endpoint (such as earning a high score on a test) but is instead about moving beyond one's current level of ability, whatever it might be. Lidz and Gindis (2003, p. 103) stress this point in the following description of DA: "traditional standardized assessment follows the child's cognitive performance to the point of 'failure' in independent functioning, whereas DA in the Vygotskian tradition leads the child to the point of achievement of success in joint or shared activity." Indeed, Feuerstein et al.'s (1988) book on using DA with "retarded" learners carries in its title the plea, "Don't Accept Me as I am."

Lantolf and Poehner (2004) describe the perspective of DA by suggesting that dynamic procedures see the future as a bet in favor of everyone. In DA, as called for in Vygotsky's ZPD, assessment and instruction are dialectically integrated as the means to move toward an always emergent (i.e., dynamic) future. Bronnfenbrenner (1977, p. 528) captures this notion nicely in citing an excerpt from a conversation with A. N. Leont'ev, an influential colleague of Vygotsky, in which the latter noted that "American researchers are constantly seeking to discover how the child came to be what he is; we in the USSR are striving to discover not how the child came to be what he is, but how he can become what he not yet is."

1.4 Models of Dynamic Assessment

As mentioned earlier, there is currently a proliferation of approaches and methods that fall under the general term Dynamic Assessment. In part, this diversity can be attributed to researchers' efforts to meet the demands of stakeholders in various assessment contexts. Another, more important factor in the development of DA models is the various ways in which Vygotsky's work on the ZPD have been interpreted since the introduction of this concept to Western audiences by Vygotsky's colleague, A.R. Luria (1961). In fact, as Chaiklin (2003), points out, the ZPD itself evolved over time in Vygotsky's writings. While subsequent chapters will consider in some detail the interpretations of the ZPD that have led to specific DA methodologies, it is useful at this point to introduce some key terms that have been

proposed to reflect various applications of DA procedures as well as differences regarding the nature and timing of interventions (Sternberg and Grigorenko, 2002; Lantolf and Poehner, 2004).

1.4.1 Dynamic Assessment and Dynamic Testing

Sternberg and Grigorenko (2002) suggest a subtle yet important distinction between two broad applications of DA. According to these authors, DA procedures can be used to determine "whether and how the participant will change if an opportunity is provided" while others actually intervene in the development of the individual with the goal of producing changes (p. 30). They suggest the term *dynamic testing* to refer to the former and *dynamic assessment* for the latter. While the use of these terms introduces its own set of problems – not the least of which is the confusion it produces since both of these are generally referred to as DA – their point is worth considering.

Sternberg and Grigorenko reserve the term *dynamic assessment* for procedures that attempt to undo predictions made by NDAs by intervening in learners' development. These approaches to DA often use the initial assessment session as a springboard for subsequent intervention, which continues the ZPD work begun during the assessment. In some cases, such intervention programs extend over a period of years. Perhaps the most well known of these programs is Instrumental Enrichment, developed by Feuerstein and his colleagues in Israel as part of their approach to DA (discussed in later chapters).

Sternberg and Grigorenko (2002, p. 30) contrast such applications of DA with those that are not part of an intervention program. They point out that some DA procedures can be thought of as diagnostic evaluations in which a mediator offers assistance to learners and analyzes their responsiveness in order to make predictions about their learning ability. The learners' responsiveness to mediation is then reported to teachers, parents, administrators, and other decision-makers. One can imagine the value of such information for certain assessment decisions, including the acceptance of individuals into programs, the placement of learners at an appropriate level of study, the allocation of funds, etc. Here, the dynamic procedure is a one-time occurrence with a very particular purpose in mind. Of course, by suggesting that the examiner in this case does not attempt to change the learners, Sternberg and Grigorenko overlook the fact that mediated interaction can – and does – promote development. Nevertheless, if one follows Vygotsky's argument that independent performance reveals only those abilities that have already developed, it is clear that DA enables a more fine-grained understanding of learners' abilities than NDA. The work of Milton Budoff and his colleagues (also discussed in later chapters) applying DA principles to intelligence testing is an excellent example (Budoff, 1968, 1987).

Although Sternberg and Grigorenko are correct to point out these different applications of DA, dynamic assessment and dynamic testing should not be thought of as separate enterprises. In fact, according to Lidz and Gindis (2003, p. 105) a similar distinction within DA approaches emerged in Russia during the years

following Vygotsky's death. One foregrounded the assessment of learning ability and the other, more intimately connected to Vygotsky's theory, stressed teaching and learning in the ZPD. Assessment and teaching were, of course, a part of both approaches. From a Vygotskian perspective, it is only possible to understand abilities and the processes of their development by actually *promoting* their development. Following his favorite philosopher, Spinoza, Vygotsky often observed that "it is only in movement that a body shows what it is" (Gauvain, 2001, p. 35, cited by Lidz and Gindis, 2003, p. 99). Indeed, Vygotsky's discussion of *microgenesis* dealt specifically with the issue of development occurring very quickly, and so it is not difficult to accept that even a single session in which a mediator and a learner cooperatively construct a ZPD can result in development. For that reason, the term DA will be used throughout this book to refer to single occurrences of dynamic sessions (as in Budoff's work) as well as those that are carried out in the context of a unified assessment–instruction program (such as Feuerstein's).

1.4.2 Interventionist and Interactionist DA

Lantolf and Poehner (2004) propose the terms *interventionist* and *interactionist* to describe the two general kinds of mediation that DA researchers can make available. Although some DA proponents refer to any kind of support offered to learners as "intervention" (e.g., Lidz, 1991; Sternberg and Grigorenko, 2002), the term mediation will be used here, given its central role in SCT. However, mediation can entail a wide array of support, ranging from standardized hints to dialogic interaction. As Lidz and Gindis observe, Vygotsky was well aware of the different approaches educators might use to mediate learners' development, suggesting that "it would be important to discriminate between those interactions that promote such development and those that do not, assuming that all interactions are not equal" (Lidz and Gindis, 2003, p. 104). In his own writings, Vygotsky preferred the term "cooperation" to describe the mediator–learner relationship, clearly implying a dialogic interaction in which both participants share in the responsibility for development (Vygotsky, 1998, p. 201).

Interactionist DA follows Vygotsky's preference for cooperative dialoging. In this approach, assistance emerges from the interaction between the mediator and the learner, and is therefore highly sensitive to the learner's ZPD. *Interventionist* DA, on the other hand, remains closer to certain forms of static assessment and their concerns over the psychometric properties of their procedures. *Interventionist* DA uses standardized administration procedures and forms of assistance in order to produce easily quantifiable results that can be used to make comparisons between and within groups, and can be contrasted with other measures and used to make predictions about performance on future tests. *Interventionist* DA is concerned with quantifying, as an "index of speed of learning" (Brown and Ferrara, 1985, p. 300), the amount of help required for a learner to quickly and efficiently reach a prespecified endpoint. In contrast, *interactionist* DA focuses on the development of an individual learner or even a group of learners, regardless of the effort required and without concern for

predetermined endpoints. Lantolf and Poehner (2004, p. 54) have noted that the distinction between these two approaches to DA is reminiscent of Elkonin's (1998) train metaphor for describing different orientations to instruction and learning. According to Elkonin, those interested in learning speed and efficiency are said to focus on how quickly a train moves toward the final station along a set of tracks, while others are less interested in the train's speed than they are in helping to lay down new tracks leading toward a station that is potentially always relocating (Elkonin, 1998, p. 300).

1.4.3 Sandwich and Cake Formats of DA

Finally, DA procedures can be structured according to what Sternberg and Grigorenko (2002, p. 27) have described as *sandwich* and *cake* formats. The sandwich format is much more in line with traditional experimental research designs in which treatment is administered following a pretest (used to establish a baseline measure) and a posttest (used to evaluate the effectiveness of the treatment). In this approach to DA, a mediation phase is similarly "sandwiched" between pretest and posttest that are administered in a non-dynamic manner. The performance on the posttest can then be compared to the pretest in order to determine how much improvement an individual made as a result of mediation. Sternberg and Grigorenko also point out that these procedures can be administered in either an individual or group setting, and that in individualized procedures the mediation may also be individualized, while in group procedures the mediation tends to be the same for everyone. The *cake* format refers to procedures in which mediation is offered during the administration of the assessment, usually whenever problems arise. Sternberg and Grigorenko (2002, p. 27) note that the *cake* format is especially effective in individual administrations where mediators can focus their support on helping learners identify and overcome errors following each assessment task or item. In *interventionist* approaches to DA, the mediation offered might be in the form of a graded set of standardized hints ranging from implicit to explicit. The mediator then calculates the number and type of hints required by the learner in order to respond appropriately to the particular item. In such a model, variation across learners would necessarily be a function of the number rather than the content of the hints, since these are standardized. In an *interactionist* approaches to DA, any analysis of variation across learners or for the same learner over time would have to include both the quality and amount of assistance.

1.4.4 Dynamic Assessment and Resistance to Change

DA research in the West has been ongoing for more than 40 years, and a considerable body of research now exists in the general education and psychology literatures. Nevertheless, as Sternberg and Grigorenko (2002, pp. 30–31) observe, DA has not been enthusiastically received by everyone in the scientific community. They suggest three reasons why DA has failed to emerge as a dominant paradigm within mainstream

research. The first of these concerns DA methodologies. With some notable exceptions (e.g., Guthke and Beckman, 2000), DA researchers have not made systematic attempts to psychometrically establish the validity and reliability of their procedures. For *interactionist* DA researchers, such as Feuerstein, psychometric concerns are not addressed since they eschew standardization in favor of understanding and promoting development of the individual. *Interventionist* researchers continue to validate their work using traditional methods, although a recurring problem is that existing statistical models, developed for the measurement of fixed traits, are less than adequate for depicting the kinds of dynamic, emergent abilities that are of interest in DA (Embretson and Reise, 2000). An additional, related issue in DA research has to do with replication studies. Again, this criticism is more of a concern for researchers in *interventionist* DA; proponents of *interactionist* DA follow a case study approach to research and validate their work on the basis of an accumulation of in-depth studies of individuals or groups of individuals. Those working in *interventionist* DA, however, follow standardized administration procedures and typically adhere to traditional statistical methods of data analysis and interpretation, and so could certainly carry out replication studies. In this regard, Sternberg and Grigorenko's point is well taken. The final reason suggested for the relative lack of attention DA work receives is, arguably, the approach's greatest strength – its novelty. As described earlier, the assessment–instruction dualism is so pervasive that many are turned away from DA because it challenges accepted practice. Testing purists are quick to dismiss DA on the grounds that it is, in fact, teaching and not testing, while researchers interested in instruction may ignore DA because the term assessment connotes a field of research that is removed from their own specialization.

In applied linguistics, the last 15 years has seen a rapid growth in the interest in Vygotsky-inspired research into processes of SLA (e.g., Lantolf, 2000; Ohta, 2001). In the domain of language assessment, interest in Vygotskian theory has been much more modest. A review of the assessment literature shows that little research been done from a Vygotksyan perspective, and that the work that does make reference to Vygotsky has either used SCT as a research tool to understand learners' behavior during assessments (e.g., Coughland and Duff, 1994; Spence-Brown, 2003) or as a basis for critiquing and reconsidering existing testing practices (e.g., Lantolf and Frawley, 1988). Johnson (2001) suggested that aspects of SCT might have important implications for how oral proficiency interviews could be conducted, but she did not offer concrete guidelines or examples of how interview administration procedures would need to be modified. The time is therefore ripe for the introduction of a new way of thinking about assessment and instruction that is grounded in Vygotsky's theory of mind.

1.5 Conclusion and Overview of this Book

Dynamic Assessment challenges conventional views of assessment and instruction by arguing that these should not be dualistically opposed to one another and, further, that they are not even distinct activities. Assessment and instruction can only

be complete when they are fully integrated, with mediated interactions simultaneously revealing and promoting learners' abilities. In this way, DA is much more than a methodological innovation. It is a new philosophy of teaching and assessment in which learner development takes center stage. In this chapter we saw that the theoretical motivation behind a monistic conceptualization of assessment and instruction emerges from Vygotsky's theory of the mediated mind. In Vygotskian theory, human mental functioning is always mediated, either externally, as when we interact with others, or internally. Importantly, internal forms of mediation are in fact the result of our history of interacting with others. That is, our social interactions in the world are the source of our cognitive development. The great power of education, then, is that it presents opportunities to intervene in and guide the development of mental functions by offering learners appropriate forms of mediation. These interactions not only support learners' ongoing development but they also shed light on the full range of their abilities – those that have already fully developed and those that are still forming.

To date, DA has generated an impressive body of research in the study of general intelligence and the remediation of basic learning abilities among individuals with special needs. Studies of DA's implications for problems particular to the development of L2 abilities are only beginning. This book is intended to:

- Explicate the ontological perspective on human mental abilities and their development that underlies DA, focusing particularly on theoretical constructs proposed by Vygotsky that reorient educational activities to learner development
- Provide a critical introduction to the major approaches to DA as well as recommendations for contexts in which specific methods are most appropriate
- Review the existing DA literature concerned with L2 development and propose a framework for classroom-based L2 DA research and practice that is informed by SCT and current DA methods
- Illustrate the use of DA to understand and promote L2 development
- Offer a model of how classroom practitioners may systematically create profiles of learner development during DA

With these goals in mind, the book is divided into two parts. Part I acquaints the reader with Vygotskian theory, traces the development of DA, and introduces the major approaches to DA, noting the advantages and challenges associated with each. Part II extends this work to the L2 domain and describes a model for implementing DA in the L2 classroom.

In the next chapter, I will trace the history of DA to Vygotsky's writings on the Zone of Proximal Development. As we will see, Vygotsky himself explored various contexts in which the ZPD might be used as both a research tool for framing interactions and highlighting processes of development as well as the basis for powerful pedagogical interventions intended to guide development. However, it was the introduction of Vygotsky's ideas to Western audiences by his famous colleague, A.R. Luria (1961), that set the stage for the widely divergent approaches to DA that exist today. Chapter 3 will survey these approaches, noting how their methods arose from different interpretations of the ZPD. This review is of far greater value than

historical interest – each of the DA approaches considered offers certain advantages and is likely to be more useful in some assessment contexts than in others. I will therefore suggest connections between each of the DA approaches and the assessment and pedagogical goals they might advance. The lion's share of our discussion will be devoted to the work of Israeli researcher Reuven Feuerstein, as his model is the most highly developed and is particularly well-suited to classroom applications. Chapter 4 then addresses some of the major criticisms that have been leveled against DA, including those raised by researchers working in other traditions as well as by DA practitioners themselves. This chapter also considers the relevance of DA to summative and formative purposes in assessment.

Part II concerns the application of DA to L2 contexts. Chapter 5 reviews the limited literature on L2 DA, together with some important work on L2 development that, while not framed as DA, demonstrates collaboration in the ZPD. The discussion then turns to an outline of how DA may be implemented in the L2 classroom. Chapters 6, 7, and 8 offer examples of L2 DA interactions to support the arguments put forth and to illustrate the proposed model. Chapters 6 and 7 explore how learners' abilities are revealed and promoted through mediator–learner interactions. In Chapter 8 I provide principles for interpreting the complexities of DA interactions that will enable classroom practitioners to profile learner development, which of course is crucial pedagogically as well as from an administrative perspective as teachers are often asked to document learning, assign grades, and provide evidence of instruction. The final chapter turns to the larger question of DA's place in applied linguistics. In the domain of L2 teaching and assessment, peer-mediated DA, and computer-based DA are all avenues worth exploring, especially since they address one of the major criticisms of DA, namely feasibility. In addition, I suggest that DA has much potential to address other areas of interest to applied linguistics researchers, particularly work with elderly populations, where ongoing research is employing DA procedures to identify and support patients with dementia, including Alzheimer's disease.

Chapter 2
The Origins of Dynamic Assessment: Sociocultural Theory and the Zone of Proximal Development

Abstract In this chapter, the central concepts of Vygotsky's Sociocultural Theory are discussed, and particular attention is given to the Zone of Proximal Development. The Zone of Proximal Development, or ZPD, was Vygotsky's solution to overcoming the instruction–assessment dualism. The evolution of this concept in Vygotsky's writings is traced, as are its relations to other aspects of the theory, namely mediation and internalization. The introduction of the ZPD to Western researchers, and its subsequent misinterpretations, are described. The connections between divergent views of Vygotsky's work and the emergence of DA methodologies are elaborated.

Keywords Sociocultural theory, zone of proximal development, mediation, internalization, development

2.1 Introduction

An historical precedent to Dynamic Assessment can be found in the Socratic dialogues described by Plato. Through clever questioning and quick insightful responses, Socrates succeeds time and again in helping his interlocutors to see the flaws in certain ideas while at the same time collaboratively constructing a new perspective. An excellent example of such a dialogue occurs in *Phaedrus* (Plato, 1998), where Socrates employs a series of leading questions and suggestions to help the title character identify certain logical problems in a speech he had been admiring, and thereby sets the stage to launch off in new directions of thinking on the topic. To some degree, then, the Socratic dialogue involves simultaneously assessing and instructing. The initial response that Socrates' questions elicit is indicative of his interlocutors' thinking at that moment. However, unlike a conventional test, Socrates does not end the dialogue after this answer but rather continues to collaboratively explore the issue with his audience, attuning additional questions and suggestions to each new response that they give. While at first it may appear that Socrates is merely quizzing his

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audience, the resolution of each dialogue leaves little doubt that his game also involves teaching them.

Dynamic Assessment, with its roots in Vygotsky's theory of mind, takes the integration of assessment and instruction much further by enabling the leader in this dialogic dance to optimally promote learners' abilities by continually fine-tuning their mediation to the learners' changing needs. In fact, central to DA is the tenet that cognitive abilities can only be fully understood by actively promoting their development. DA overcomes the assessment–instruction dualism by unifying them according to the principle that mediated interaction is necessary to understand the range of an individual's functioning but that this interaction simultaneously guides the further development of these abilities.

As should be clear from the previous chapter's review of current approaches to assessment, DA is at odds with the dominant perspective that the social environment must be controlled and individuals assessed in isolation in order to obtain uncontaminated measures of ability. A monistic view of assessment and instruction becomes possible if we follow Vygotsky's argument that cognitive abilities emerge from interactions in the world and that these are always mediated. In Vygotsky's view, abilities do not simply mature on their own but instead result from individuals' histories of engaging in activities with others and with cultural artifacts. Thus, the key to overcoming the assessment–instruction dualism lies in a rejection of some of the most hallowed concepts in psychology and education, namely innatist theories of mind and the model of the autonomous individual. DA, then, represents much more than a methodological innovation – it compels us to reconsider what it means to be a human being.

These statements may sound rather grandiose. To be sure, before accepting any such paradigm shift, the theoretical claims underlying the approach must be carefully considered and the available empirical evidence evaluated. In this regard, applied linguistics researchers and L2 teachers and assessors are at a distinct advantage as DA has been around for several decades. Our goal in the next few chapters will be to arrive at an understanding of Vygotskian theory and the potential it holds for reevaluating educational practices. Our discussion will focus specifically on following the development, from Vygotsky's early theoretical and empirical work, of the leading DA methodologies. As will become clear, each of these approaches has in common a belief that human cognitive abilities can be modified through appropriate intervention, that we are not, so to speak, slaves to our biology. Nevertheless, important differences do exist among DA approaches, and our review will be a critical one, weighing the advantages and disadvantages of each relative to specific educational goals.

The present chapter discusses the central concepts in Sociocultural Theory, with particular attention given to the Zone of Proximal Development. There are several excellent books devoted entirely to explicating this theory (e.g., Kozulin, 1990; Van der Veer and Valsiner, 1991; Wertsch, 1985), its implications for education (Kozulin et al., 2003; Wells and Claxton, 2002), and its relevance for the L2 domain (Lantolf, 2000; Lantolf and Thorne, 2006). Because our purpose here is to reconceptualize assessment and instruction from a Vygotskian perspective, I will focus only on

those aspects of SCT that relate directly to DA. Our treatment of theoretical constructs such as mediation and internalization is by no means exhaustive, and I refer the interested reader to the works listed above. We will move rather quickly toward a discussion of the ZPD, as this was Vygotsky's solution to overcoming the instruction–assessment dualism. We will trace the evolution of this concept in Vygotsky's writings as well as its introduction to Western researchers. As explained below, the divergent interpretations given to the ZPD have led to important methodological differences among DA approaches.

2.2 Vygotsky's Sociocultural Theory of Mind

As explained in the last chapter, Vygotsky and his colleagues developed what has come to be known alternatively as sociocultural theory, social historical theory, cultural psychology, and cultural historical psychology during a period of intensive research in the 1920s and 1930s. In fact, Vygotsky carried out the bulk of this work following an attack of tuberculosis and preceding another, which resulted in his untimely death at the age of 37. Although his chief collaborators, Luria and Leontiev, continued to pursue the lines of research Vygotsky began, theirs was not the government-sanctioned approach to psychology under the Stalinist regime, and so the work remained relatively unknown for many years even in the Soviet Union (Kozulin, 1990, p. 240). Over the last 50 years, as the early behaviorist models of psychological functioning gave way first to theories that liken the mind to a computer and, more recently, to perspectives that emphasize the social environment's role in the development of mental processes, Vygotsky's work has become remarkably relevant again. With the English translation of his collected works appearing in the 1990s, a new generation of scholars has been introduced to his ideas.

While at first it may seem ironic that a theory developed so long ago continues to be relevant to the issues that face contemporary psychologists and educators, the reality is that the context in which Vygotsky worked is in many ways similar to our own. While the problems Vygotsky struggled with may be familiar, his solutions were so original and innovative as to earn him enduring international renown (Van der Veer and Valsiner, 1994, pp. 1–5). In part, the originality of Vygotsky's ideas can be attributed to his broad intellectual background, which included studies in literature, philosophy, law, and medicine. One of his primary sources of inspiration was Marxist philosophy, particularly his writings on labor activity and tool use. As Engeström and Miettinen (1999, pp. 4–5) observe, contemporary Vygotskian scholars often downplay or overlook entirely the importance of Marx's ideas for SCT, usually for political reasons. The authors go on to argue that it is not Marx's critique of capitalism that must be understood but rather the theoretical concepts he develops to accomplish his analysis (ibid.). Vygotsky and his colleagues accepted Marx's crucial insight that human beings shape and are shaped by their environments through concrete activity mediated by physical tools and they extended this to the psychological plane, proposing that human cognitive functions are also

mediated (Leont'ev, 1981). Indeed, the various names by which Vygotsky's theory is known are all intended to capture the basic tenet that human cognition is mediated *socially* through interaction with others and *culturally* through the use of cultural objects (Cole and Engeström, 1993; Vygotsky, 1986; Wertsch, 1985). Engaging in activities that are mediated by others and by cultural objects allows individuals to develop what Vygotsky described as higher forms of consciousness that are unique to humans (Vygotsky, 1978). In this way, individuals develop awareness of and control over their psychological functions, including attention, perception, and memory. This seemingly simple idea has profound implications for the study of mind and mental development as well as for educational practices, a point that will be elucidated as we consider the central concepts in SCT.

2.2.1 Mediation Through Physical and Symbolic Tools

Kozulin (1998, 2003) suggests the terms *physical, symbolic,* and *psychological tools* as a way of conceptualizing Vygotsky's central argument that an individual's social and cultural environment is the source of the development of higher psychological functions. From a Vygotskian perspective, humans relate to their world *psychologically* in much the same way as they do *physically*. To take a mundane example, consider the activity of constructing a table. To obtain the necessary raw materials (assuming for a moment that one opts not to simply visit a local hardware store), one must first chop down a tree and then carve out the pieces of wood that will later be sanded, finished, and assembled. Unlike other animals, humans have developed tools to facilitate each stage in this process, including axes, saws, sanders, and drills. While one need not use the latest power tools, it is impossible to imagine accomplishing this activity without using some basic tools. In this way, humans are able to transform their environment in ways that other animals do not. However, this is not the full picture. Following an intellectual tradition that dates back to the work of Hegel, Marxist philosophy posits a dialectic relationship between humans and their environment whereby humans not only transform their environment through tool use but are themselves transformed in the process (see Engeström and Miettinen, 1999). After all, to be valuable, tools must be used in a specified manner and not in some other way. To return to the example of constructing a table, effective use of an axe entails grasping the handle rather than the blade and making a swinging or chopping rather than sawing motion.

An important aspect of this perspective is that it underscores the uniquely human ability to break beyond biological limitations through cultural means. For instance, humans are not able to run as quickly as many animals, cannot swim as efficiently as fish, and are unable to fly like birds, but we have developed machines such as cars, trains, boats, and planes, that allow us to surpass other animals in each of these domains. In medicine, hearing aids, pace makers, prosthetic limbs, and eyeglasses all represent culturally specific solutions to overcoming biological impairments. In the field of education, new instructional technologies are continually being created

to help individuals with dyslexia, Downs Syndrome, and autism develop their abilities beyond what was once thought possible. In this way, the physical tools that we create mediate our relation to the world.

Of course, this last example is particularly interesting because, as teachers, we offer our learners far more than new technologies. Vygotsky understood this as well, and his interest in the development of psychological functions led him to suggest that just as humans use physical tools to mediate their relation to the world in *concrete* ways, they also use symbolic tools to mediate themselves on a more *abstract* plane. Signs, various numeric and writing systems, graphs, charts, and tables are all examples of symbolic tools (Kozulin, 2003, p. 18). Unlike physical tools, symbolic tools, which Vygotskian researchers generally refer to as *cultural artifacts*, may not only be directed outwardly to mediate our relationship with the world, but also inwardly, to mediate our relationship with ourselves (Vygtosky, 1994b). In fact, for Vygotsky cognitive development *means* gaining the ability to mediate one's own thinking, and it is for this reason that Vygotsky conducted much of his empirical work, where he could observe and intervene in cognitive functions while they were in the process of forming.

Vygotsky observed that children are mediated by others into using symbolic tools very early on. One example he describes involves pointing. Initially, this simple gesture is not a gesture at all but an effort to grasp some object. When another person enters the picture, perhaps the mother, she interprets the move as a gesture. In other words, what for the child is an attempt to reach an object becomes for others a sign that directs their attention. Later, when the child understands the connection between the grasping attempt and the effect it has on others, the move comes to hold meaning – that is, to function as a form of symbolic mediation – but this is only after it has been imbued with meaning by adults (Vygotsky, 1978, p. 56).

As children develop, they learn to use other symbolic tools, especially language, to influence others. Importantly, while children may use these symbolic tools to influence others, they in turn are influenced *by* others who are also using these same artifacts. Through this reciprocating relationship individuals develop the ability to use symbolic tools to regulate themselves in physical as well as mental activities. Vygotskian theory explains that human cognitive development involves passing from a stage of *object regulation* (where, like animals, our behaviors are controlled by our immediate field of perception) to *other regulation* (when, for instance, we act under the direction of another person) and ultimately to the stage of *self-regulation* (characterized by the ability to mediate oneself through symbolic tools) (Vygotsky, 1986, 1997).

To illustrate, consider the basic need to satisfy hunger. At the level of object regulation, psychological functioning is controlled by the environment rather than by the individual, and so in response to hunger the individual eats what is immediately available or goes in search of food. Deliberately delaying feeding is not an option. Others may enter the picture and perform a regulating function, perhaps ordering the individual to eat something or forbidding him from doing so. Individuals may also work in cooperation to achieve their ends, with each member of a group participating differently but contributing nonetheless to the realization

of their common goal. A well-known example involves the activity of hunting, in which some individuals will beat the bush to scare their game out of hiding so that other members of the group can kill the animal, and all can eat (Leont'ev, 1981, p. 210). At the level of self-regulation, individuals begin to think in particular ways about how, when, and with which cultural artifacts they will accomplish various ends. They may decide to participate in the hunt or not, they may choose to eat later, when they can join a friend for a meal in a restaurant, or perhaps they will decide not to eat at all in an effort to lose weight. Self-regulation is the ability to control one's responses, so that actions are not merely instinctive but instead result from voluntary consideration of possible alternatives and intentional selection of a course of action. In this way, humans are agentive in ways that other animals are not because they can choose when and how they will satisfy their needs. Of course, up to this point we have not answered the question how precisely the use of symbolic tools enables individuals to self-regulate, and this is a matter of the utmost importance because it concerns the very meaning of development in SCT.

2.2.2 Internalization and the Development of Psychological Tools

According to Vygotsky, learning to use symbolic tools as mediating artifacts through engaging in activities with others gives rise to new forms of cognition through a process known as *internalization* or "ingrowing" (Vygotsky, 1994b, p. 65). Vygotsky acknowledged that humans, like other animals, are endowed with a biological capability to develop lower-level or natural psychological processes. What is unique to humans is that this biological substrate is radically changed as social and cultural forms of mediation are internalized and reemerge as higher-level cognitive functions. In this way, individuals gain control of their own cognition – that is, they come to self-regulate. As Vygotsky explained:

> Culture, generally speaking, does not produce anything new apart from that which is given by nature. But it transforms nature to suit the ends of man … it also consists of inner changes in that which was given by nature in the course of the natural development of behavior. (Vygotsky, 1994b, p. 59)

Earlier in this chapter we saw that Vygotsky was working from a Marxist theoretical perspective that posits a dialectical rather than dualistic relationship between individuals and their environment. Internalization was Vygotsky's solution to the nature–nurture dualism, a debate that continues in many circles to this day. In his view, it is inappropriate to attribute human psychological functioning solely to biology or to the social world as both are absolutely necessary, and, importantly, culture allows all individuals – even those with biologically rooted mental disabilities – to move well beyond the limits of biology (Vygotsky, 1993, p. 256). Moreover, Vygotsky saw internalization as an approach to unifying what have generally been regarded in psychology as two distinct spheres – the social and the mental. For

Vygotsky, their relationship rests on the basic principle that our functioning in cooperation with others is *interpsychological*, and that when we begin to perform these functions independently they have moved from the interpsychological to the *intrapsychological* plane. This leads to Vygotsky's well-known maxim, that all cognitive functions appear twice in the history of their development, initially as an interpersonal process (between an "I" and a "You") and later as an intrapersonal one (between "I" and "Me") (Vygotsky, 1978, p. 56). He explains its significance as follows:

> The internalization of socially rooted and historically developed activities is the distinguishing feature of human psychology, the basis of the qualitative leap from animal to human psychology. (Ibid.)

Luria (1979, p. 45) eloquently expresses the magnitude of this perspective by observing that it is through the internalization of social and cultural forms of mediation that "the social nature of people comes to be their psychological nature as well."

Of course, as Lantolf (2003, p. 351) points out, internalization should not be crudely regarded as literally placing something inside a person's head. A more accurate understanding of internalization can be found in Vygotsky's experimental research. Vygotsky (1994b, pp. 64–66) describes one study in which children were read a list of words and asked to recall as many as they could. Initially, the children attempt the task with no external means of support, relying exclusively on memory. At the next stage, the experimenter offers them a series of cards with pictures that correspond in obvious ways to the words, and so the children learn to use the cards to remind them of the words they need to recall. This addition greatly enhances the children's performance, as one would expect, but when the children are given cards that do not have a clear connection to the words they are read, their performance falls apart. Because the children do not know how to use the cards as a mnemonic to mediate their remembering, they do not give the correct words but instead say other words suggested by the pictures. Vygotsky reports that with time, and additional attempts, the children usually learn to mediate their act of remembering by carefully selecting a card that corresponds to each word that they hear, often creating unique and idiosyncratic associations between the word and picture. As Vygotsky puts it, the child "replaces the processes of memorizing by a rather complicated external activity" (p. 65) whereby the cards function as symbolic mediators because they have been assigned meaning by the children. In the final and most important phase, "the external activity of the child remembering by means of a sign passes on into internal activity. The external means, so to speak, becomes ingrown or internal" (ibid.). Vygotsky explains that this can be observed when, for instance, a child is asked to complete the tasks with the cards in a prearranged order. His ability to do this regardless of the words he must remember indicates that the cards are no longer necessary as the child is able to create his own mental representations (e.g., contexts, stories, and persons) that help him complete the task. Moreover, Vygotsky points out that conclusions about the child's abilities are confirmed when he performs equally well on related but different tasks, "even when external conditions have changed radically" (p. 66). This last point is especially relevant to DA and the concept of transfer, and will be returned to later in this chapter.

In Vygotsky's example, the children's memory is transformed through their appropriation of symbolic tools. Kozulin (1998, 2003) refers to these transformed cognitive functions as *psychological tools*. Focusing his remarks specifically on an educational program developed by DA practitioner Reuven Feuerstein (discussed in detail in the next chapter), Kozulin (1998) argues that the extensive and intensive use of charts, tables, graphs, and other cultural artifacts allow learners to interact with instructional tasks in a mediated rather than a direct manner. Through engaging in educational activities that involve, among other things, "coding and decoding, the use of models and formulae, representation of one and the same problem in different modalities, generalization, and classification," learners develop *internalized* versions of the cultural artifacts that they use to complete the tasks (Kozulin, 1998, p. 89). In other words, charts, tables, and graphs allow learners to begin to think and to approach problems in new ways. In their internalized form, these symbolic tools take on psychological significance that afford learners' greater awareness of and control over cognitive processes, and from a Vygotskian perspective this *is* development (ibid.). Kozulin describes the significance of psychological tools as follows:

> Hypothetical reasoning, theoretical experimenting, the use of models, generalized problem solving, and other scholastic activities cannot be accomplished without some form of symbolic representation based on the use of psychological tools. (pp. 84–85)

From this perspective, education can be thought of as the activity of helping learners to develop psychological tools, thereby enabling them to interact with the world in increasingly complex ways.

In formal schooling, instructional time is typically segmented into periods for learners to study specific content domains. Vygotsky's students and colleagues who carried out research and devised educational innovations in the Moscow public schools noted that content areas each have their own organizational and conceptual logic (see especially the work of Davydov, 1988; Gal'perin, 1989; and Markóva, 1979). Indeed, Vygotsky himself distinguished the knowledge individuals acquire through everyday life experiences from the systematically organized domains of knowledge encountered in formal schooling (Vygotsky, 1978, 1986). Knowledge from everyday life, which Vygotsky referred to as *spontaneous concepts*, is usually based on simple observations and therefore remains on a more superficial level. In contrast, Vygotsky described the knowledge presented in school as *scientific concepts* because it is the result of principled inquiry and study. Karpov (2003, pp. 65–66) borrows an example from Zaporozhets (1986) to illustrate the difference between everyday and scientific concepts. Small children placing various objects (e.g., coins, pins, needles) in water and observing that they sink may draw the conclusion that all small objects sink. While this might seem reasonable, it is inaccurate and would lead the children to make additional predictions that would also be false. In school, children are introduced to Archimede's Law, and learn to accurately predict the behavior of objects in water. It is important to note that although spontaneous concepts are derived from experience and are therefore often unsystematic and inaccurate, they provide a basis for the development of scientific concepts. Moreover, the power of scientific concepts is that they transform individuals' everyday knowledge by making

them aware of their spontaneous concepts but also restructuring them. As Karpov (2003) explains: "once acquired by students, scientific concepts begin to mediate their thinking and problem solving" with the result that "students' thinking becomes much more independent of their personal experience" (p. 66).

Most importantly, scientific concepts are themselves psychological tools because they mediate our understanding of the world and therefore our engagement in various activities in the world. As Kozulin (2003) correctly observes, from a Vygotskian perspective:

> There is no opposition between cognitive mechanisms and content knowledge for the simple reason that content appears here in a conceptual form that defines not only the content but also the type of reasoning involved. Because sociocultural theory emphasizes the historical character of human cognition, the conceptual structure of disciplinary knowledge appears here as a veritable form of human thinking. (p. 33)

Domains of knowledge, then, all have their own underlying logic, their own unique concepts that serve as "symbolic devices" for representing their object of study, for highlighting specific aspects of that object, and for organizing relationships among the various categories and principles that constitute the domain (Kozulin, 1998, p. 161). The conceptual study of history, mathematics, foreign languages, and other disciplines enables individuals to develop new psychological tools – scientific concepts – and this has practical consequences. In addition, from this perspective one does not first develop the psychological tools requisite for studying content areas but develops the tools through conceptual study. This insight has important implications for how one understands the relationship between instruction and development. As we will see in the next section, the nature of this relationship was a major source of debate in Vygotsky's day and his proposal of the Zone of Proximal Development was, in part, a response to the Piagetian notion of readiness. For Vygotsky, teaching has the greatest impact on development when learners are mediated into performing beyond their current capabilities (i.e., beyond what they are able to do independently). Of course, this requires a detailed understanding of learners' current level of development, and this includes cognitive functions that they have fully as well as only partially internalized. With the ZPD, Vygotsky believed that it was possible to simultaneously gain this broad perspective on development and help learners move beyond their present abilities. Vygotsky did not arrive at this insight all at once, but developed the concept over time. We will now turn our attention to tracing the genesis of the ZPD.

2.3 Theory in Action: The Zone of Proximal Development

2.3.1 Defining the Zone of Proximal Development and its Contexts of Use

Chaiklin (2003, p. 40) observes that the ZPD is among the most well known of Vygotsky's contributions to psychology and education and is perhaps the aspect of

his work that has received the most widely divergent interpretations and applications. In a similar vein, Wertsch (1984, p. 7) expresses concern that the term has been used so widely and to understand so many psychological phenomena without a clear grounding in Vygotsky's conceptualization of the ZPD as a theoretical construct. According to Wertsch, researchers using the ZPD "loosely and indiscriminately" risk turning it into a notion "so amorphous that it loses all explanatory power" (ibid.). The range of interpretations of this construct is due, in part, to the scant material on the ZPD that has survived in Vygotsky's writings; little is available in Russian and even less in English. Indeed, following Van der Veer and Valsiner's (1991, p. 329) tracing of the concept in Vygotsky's work, the ZPD first appears only 1 year before his death in 1934, and Chaiklin (2003, p. 43) points out that it is only discussed by Vygotsky in eight places, including manuscripts, transcripts of lectures, and book chapters (see Chaiklin, 2003, pp. 44–45 for a full listing). Of all Vygotsky's descriptions of the ZPD, it is the one that appears in *Mind in Society* that is cited over and over. There, Vygotsky defines the ZPD as "*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 p. 86, italics in original). This definition, particularly when it is taken in isolation from the rest of Vygotsky's work, can yield numerous interpretations. Indeed, even when all Vygotsky's writings on the ZPD are considered questions still arise. For example, Wertsch (1984, p. 8) points out that nowhere does Vygotsky provide specific examples of what he means by *adult guidance* and *collaboration*.

Recently, the variety of perspectives on the ZPD that currently characterizes Vygotsky-inspired research has prompted some authors to avoid the term altogether or to restrict its usage to certain specific situations. For instance, one of the more conservative readings of the ZPD is that proposed by Chaiklin (2003). He argues that the ZPD was not intended for the analysis of domain-specific learning nor was it meant to explain adult learning. In Chaiklin's view, the ZPD is also neither a heuristic nor a metaphor, as some authors have suggested. He maintains that the ZPD, as envisioned by Vygotsky, is tied to the latter's model of age periods of child development (Chaiklin, 2003, pp. 48–50). The child is said to pass through periods of relative stability punctuated by crisis periods during which *qualitative structural* changes result in novel cognitive functions. Vygotsky referred to these radical leaps in development as "revolutionary breakthroughs" (Vygotsky, 1984, p. 249; cited in Valsiner and van der Veer, 1993, p. 41). The ZPD was Vygotsky's proposal for understanding children's relative proximity to the next age level of development, performing what he referred to as "diagnostics of development" (Vygotsky, 1998). In this regard, Vygotsky defined such diagnostic assessments as a two-step process. One must first uncover children's *actual* level of development (i.e., cognitive functions that have already matured), which he suggests can be accomplished through observation of their independent problem solving. Then, through analysis of their responsiveness during joint problem solving, the researcher can assess their *proximal* level of development, understood as those cognitive functions that have not yet matured but are only in the process of maturing and which are required for the next

age period. This leads Chaiklin (2003) to conclude that the ZPD should not be used in a general way to refer to development brought about by interaction and assistance because such "assistance is meaningful only in relation to maturing functions needed for transition to the next age period" (p. 57). In Chaiklin's view, most domains of educational research and practice, including Dynamic Assessment presumably, do not benefit from using the term Zone of Proximal Development and should instead rely on alternative terminology such as scaffolding and assisted instruction (p. 59).

Chaiklin's charge is a serious one and not to be dismissed out of hand. To be sure, some interpretations and applications of the ZPD are more in line with Vygotsky's than others, and this is patently clear when one considers the various DA approaches, which we will do in the next chapter. The rest of this chapter offers an in-depth discussion of how Vygotsky understood the ZPD so that we will be better positioned to evaluate the ways in which DA researchers make use of the concept. Before moving on, I would like to respond to Chaiklin by making two important points regarding the use of SCT concepts in DA and in educational research on the whole. The first of these concerns the significance attributed to Vygotsky's work. As Davydov and Radzikhovskii (1985) argue, Vygotsky's empirical psychological investigations should be distinguished from his contributions as a methodologist of psychology and the human sciences more generally (p. 37). That is, although his own research focused primarily on children, the scientific methodology he devised and the theoretical constructs he proposed need not be limited to children. Indeed, Vygotsky's interest was in human cognitive functioning, which he believed could best be understood by following the path of its development, and this is the reason for his focus on children. Removing his theoretical constructs from the context of children and applying them more broadly to questions of development is not only in keeping with the spirit of Vygotsky's work but it is essential to advancing his program to understand human consciousness. Vygotsky's own colleagues and students similarly investigated the rehabilitation of cognitive functions, as with brain-damaged patients (e.g., Luria, Sacks & Solotaroff, 1972) and employed his ideas to understanding the development that occurs through studying scientific concepts in particular domains, as explained earlier. There is no reason, then, to object to the use of Vygotsky's methods and constructs to illuminate processes of development that occur through various socially organized activities, including the study of second languages. Moreover, most researchers working in Vygotskian theory today (e.g., Kozulin, 1998; Minick, 1987) as well as in DA (e.g., Brown and Ferrara, 1985; Lidz, 1991) rightly recognize Vygotsky as a "founding father" of the dynamic approaches to assessing cognitive abilities. In fact, it will be argued in the following subsections that Vygotsky's discussions of the ZPD, while sparse in some respects, actually provide the groundwork for the two dominant approaches to DA today, namely the psychometric and the clinical. Van der Veer and Valsiner's (1991) detailed summaries of some of Vygotsky's lectures, in addition to Vygotsky's own writings (Vygotsky, 1956, 1986, 1998) will be considered in order to bring to light some of the aspects of the ZPD concept that are often overlooked by researchers but that resonate in important ways with the rest of the theory. Specifically, I will argue that current DA research was substantially

impacted by Vygotsky's discussions of the ZPD in the context of intelligence testing and the relationship of schooling to development.

An even more compelling response to Chaiklin's concerns is that DA, particularly the approach developed by Reuven Feuerstein (discussed in detail in the next chapter), is explicitly concerned with creating instructional procedures to intervene in learner development, and in this way DA research feeds back into SCT and further develops the ZPD concept. This work demonstrates the great potential of the ZPD as not simply a theoretical concept but an activity that illuminates and guides development, and this is surely relevant to contexts that are not tied to age periods in childhood development (see Valsiner and van der Veer, 1993, for a similar argument as well as a review of several lines of research that are productively developing the ZPD concept in different domains).

2.3.2 Genesis of the ZPD in Vygotsky's Work

In contrast to Chaiklin, Van der Veer and Valsiner (1991), while also critical of some of the ways in which the ZPD is currently used, nevertheless offer an interpretation of Vygotsky's work that allows considerably more room for the concept to be extended and applied to various contexts. In fact, these authors suggest that Vygotsky himself was of two minds on the subject. They explain that the ZPD initially appeared "in the narrow context of traditional intelligence testing and was later gradually broadened to encompass the general problem of the relation of education and cognitive development" (pp. 328–329). As will be argued below, these two accounts of the ZPD in Vygotsky's writings were, for him, interrelated but nevertheless foreshadow the divergent interpretations of the concept in the work of DA researchers. Both of Vygotsky's descriptions of the ZPD – as an alternative to IQ testing and as a means of promoting development through formal schooling – are thoroughly explained in a paper he gave at the Bubnov Pedagogical Institute in 1933 entitled "Dynamics of mental development of schoolchildren in connection with teaching," which is summarized in detail by Van der Veer and Valsiner (1991, pp. 336–341). According to these authors, the Russian manuscript of this talk provides the most in-depth account of Vygotsky's understanding of the ZPD and so it will serve as the basis for much of the following discussion.

2.3.3 The ZPD as an Alternative to IQ Testing

In his lecture on mental development and schooling, Vygotsky mentioned that researchers had demonstrated that IQ scores were an accurate predictor of a child's success in school and that many schools used IQ scores to group children by ability level. However, Vygotsky also referred to research indicating that during the first years of schooling children with initially high IQs tend to lose IQ points and children

with low IQs gain IQ points. In order to understand this phenomenon Vygotsky and his colleagues proposed the use of an alternative methodology for assessment, one that included the use of "hints and prompts" during the testing procedure (Van der Veer and Valsiner, 1991, p. 337). Vygotsky theorized that not all children would respond to such assistance in the same manner, with some benefiting more than others (ibid.). Elsewhere, he provided the following example to illustrate this point:

> Having found that the mental age of two children was, let us say, eight, we gave each of them harder problems than he could manage on his own and provided some slight assistance: the first step in a solution, a leading question, or some other form of help. We discovered that one child could, in cooperation, solve problems designed for twelve-year-olds, while the other could not go beyond problems intended for nine-year-olds. The discrepancy between a child's actual mental age and the level he reaches in solving problems with assistance indicates the zone of his proximal development. (Vygotsky, 1986, p. 187)

In this way, Vygotsky hoped to have a more comprehensive understanding of children's mental functioning than IQ scores can provide.

In order to validate this model, Vygotsky and his colleagues conducted a large-scale empirical study with children entering school. Their results allowed them to group the children according to high or low IQ scores and large or small ZPDs, as determined by their responsiveness to assistance (i.e., the more responsive children were said to have a large ZPD and the less responsive students a small ZPD). Importantly, Vygotsky reported that not only did the size of the children's ZPD turn out to correlate well with their success in school (large ZPD children were more successful than small ZPD children) but that ZPD size was actually a *better* predictor of school performance than IQ.

In entering the debate over the value of IQ scores and the appropriateness of their use for the classification of children, Vygotsky was, to some extent, pressured to either endorse existing IQ tests or propose an alternative. Given the impressive results of his empirical ZPD work, one might expect he would have opted for the latter. However, in his 1933 presentation at the Bubnov Institute, he did not reject outright IQ testing but instead argued that IQ tests and ZPD assessments report two separate domains, independent and assisted performance. Moreover, he stated that the future development of the former was determined by the latter (Van der Veer and Valsiner, 1991, p. 341). He also stressed the quantification of both these abilities in the form of present and potential IQ scores. Thus, unlike in his other writings where he urged use of the ZPD to uncover processes of development (as in Vygotsky, 1986, 1998), Vygotsky saw quantification of the ZPD as most useful in the context of IQ reform. At this point in his thinking, then, Vygotsky presents us with a much less dynamic picture of the ZPD than normal. For example, he noted in his lecture that the children who received initially high IQ scores did so:

> [A]t the cost of their zone of proximal development, that is, they run through their zone of proximal development earlier, and, therefore, they are left with a relatively small zone of development, as they to some extent already used it. (Vygotsky, 1933, p. 53; cited in Van der Veer and Valsiner, 1991, p. 341)

As Van der Veer and Valsiner (1991) point out, one would expect the child's ZPD to continually move forward such that there will always be a difference between

what the child can do with assistance and her unaided performance. This would certainly be in keeping with Vygotsky's overall theory and its emphasis on the dynamics of development and its generally non-teleological orientation. However, it is directly contradicted by some of Vygotsky's remarks about the ZPD given here, particularly his characterization of the child's dynamic development occurring in a "static environment" or against a "static background" (see Van der Veer and Valsiner, 1991, pp. 341–343).

One possible explanation for this apparent discrepancy is that Vygotsky actually conceived of two possibilities for constructing a ZPD. A mediator could proceed through a fixed repertoire of predetermined assistance designed to help children complete a given task and to gain efficiency in doing so. Children receiving this form of mediation could certainly reach a point where assistance on an IQ test becomes irrelevant because they can complete all the problems on the test independently. In this way, they can be said to have "run through" their ZPD, as their unassisted and assisted IQ scores will be the same. An alternative approach to constructing a ZPD allows for mediation to emerge from the interaction between the mediator and the learner. This approach privileges the simultaneous understanding and promoting of the processes of development over any arbitrary restrictions on mediation. It is this account of the ZPD to which we will now turn. Before moving on, it is worth noting that both of these approaches have been taken up and to some degree fleshed out by DA researchers (see discussion below of interventionist and interactionist DA). Of course, because many of the important details of the empirical investigations carried out by Vygotsky and his colleagues were not reported in Vygotsky's writings and lectures on the ZPD, the precise nature of the assistance offered to his participants cannot be known.

2.3.4 The ZPD as a Means to Promote Development Through Instruction

At the time of Vygotsky's talk at the Bubnov Pedagogical Institute, several competing models of the relationship between schooling and development existed, with the dominant view being that proposed by Piaget. According to this "organistic" view, teaching should follow development, and cognitive processes are left to evolve or mature along a natural course; it is only when the prerequisite development has occurred that instruction should begin (Van der Veer and Valsiner, 1991, p. 329). Vygotsky rejected this position on the grounds that it left no room for instruction to seriously impact upon development, an issue particularly salient in work with children with special needs, where Vygotsky had considerable expertise. Vygotsky argued that if children have difficulty performing a given task or grasping a concept, they should not be left alone until they develop on their own a "readiness" to learn; on the contrary, they should receive focused intervention designed to bring about development. On the basis of his theoretical position regarding the role of mediation in the development of mind and the early work he and his colleagues had

done on the ZPD and IQ testing, Vygotsky suggested that instruction and development are two separate processes but that instruction should be sensitive to the periods in children's development when teaching can have an optimal effect. It is important to keep in mind, however, that this does not equate to the Piagetian notion of readiness. On the contrary, Vygotsky envisioned instruction aimed at a moving target, a timing that did not coincide with children's present abilities but that was not too far beyond their current potential. For instruction to be most useful it should be "oriented toward the future, not the past," directed not at what children are already capable of doing independently but at their "upper threshold" of functioning as it is in this way that instruction helps them realize their future abilities (Vygotsky, 1986, p. 189). The issue, then, is determining the "range" or "zone" (see Valsiner and van der Veer, 1993, p. 36 for a discussion of Vygotsky's adoption of Kurt Lewin's topology metaphors in psychological discourse) in which formal *instruction* can bring about the *development* of psychological functions.

Acknowledging the work of Meumann and certain American researchers, Vygotsky suggested an approach to the assessment of cognitive abilities that could take account of children's current level of development and their potential for future development. In fact, he wrote that "determining the actual level of development not only does not cover the whole picture of development, but very frequently encompasses only an insignificant part of it" (Vygotsky, 1998, p. 200) and even went so far as to assert that "to establish child development by the level reached on the present day means to refrain from understanding child development" (Vygotsky, 1933, p. 119; cited in Van der Veer and Valsiner, 1991, p. 329). However, as Van der Veer and Valsiner (1991) explain, this "double-level approach" to understanding development did not devalue the consideration of actual cognitive functioning, since "this would be denying that every process has its history" and that a given function "develops before it becomes measurable in practice" (p. 329). Instead, Vygotsky's proposal highlights the difference between present development and future development and attempts to understand the processes that led to learners' present development and the processes at work in the creation of their future development. For Vygotsky, these processes vary independently of one another, and the former should not be used to predict the latter. That is, a learner's future should not be assumed to be a simple extension or continuation of her present.

It is in this regard that Vygotsky took the ZPD far beyond the context of generating alternative IQ scores and framed the concept as an essential part of any true diagnostic of an individual's ongoing cognitive development. Returning to his favorite example of two children whose independent problem solving is the same but who profit differentially from assistance, Vygotsky elaborated:

> From the point of view of their independent activity they are equivalent, but from the point of view of their immediate potential development they are sharply different. That which the child turns out to be able to do with the help of an adult points us toward the zone of the child's proximal development. This means that with the help of this method, we can take stock not only of today's completed process of development, not only the cycles that are already concluded and done, not only the processes of maturation that are completed; we can also take stock of processes that are now in the state of coming into being, that are only ripening, or only developing. (Vygotsky, 1956, pp. 447–448; cited in Wertsch, 1985, p. 68)

Rather than emphasizing the ZPD as training for improving IQ scores through schooling, the ZPD is put forth here as a way of understanding processes of development *before* they are fully matured. The importance of this for schooling is that instruction that is sensitive to learners' ZPDs will help them reach their potential while instruction that does not take account of the ZPD will only lead to development on a hit-or-miss basis. That is, this form of instruction will succeed only when it happens to coincide with a learner's ZPD. In Vygotsky's words:

> [S]ince teaching depends on immature, but maturing processes and the whole area of these processes is encompassed by the zone of proximal development of the child, the optimum time for teaching both the group and each individual child is established at each age by the zone of their proximal development. This is why determining the zone of proximal development has such great practical significance. (Vygotsky, 1998, p. 204)

As discussed in the next section, both of the contexts of Vygotksy's work on the ZPD concept have played an important part in shaping the landscape of DA research.

2.4 Post-Vygotskian Interpretations of the ZPD

2.4.1 Luria's Work with Children with Learning Disabilities

Wozniak (1980) credits Vygotsky's illustrious colleague, A.R. Luria, as having played a significant role in the promotion of the ZPD and related concepts outside the Soviet Union. In particular, Luria is acknowledged for his efforts to introduce the ZPD as both a theoretical perspective on the nature of human abilities and a practical methodology for distinguishing among groups of individuals with varying underlying cognitive potentials. American psychologists such as Milton Budoff and his colleagues were among the first to explore applications of these to their work on intelligence measurement among underprivileged populations, in the process constituting the first Dynamic Assessment research (e.g., Budoff, 1968; Budoff and Friedman, 1964). Despite several remarks made by Luria against psychometrics, the fact that the ZPD was introduced to Western researchers in the context of intelligence measurement was significant. Psychologists of the time, believing that human mental abilities existed as discrete traits that could be measured in much the same way as one's height and weight (see Sacks, 1999, and Gould, 1996, for discussion) adopted the ZPD concept as a means of deriving a more accurate set of scores on standardized intelligence tests. Echoing Vygotsky's early discussion of the ZPD, Budoff and others hoped to obtain higher IQ scores for underprivileged learners by training them on the kinds of tasks presented on the tests. More recently, other researchers (Kozulin, 1998, 2003; Minick, 1987) have criticized these interpretations of the ZPD. Following Vygotsky's writings of the ZPD in relation to schooling and development, these authors insist that the ZPD is best used as a qualitative approach to understanding and promoting the development of cognitive

processes. They suggest that the DA tradition most in line with Vygotsky is that of the Israeli psychologist and educator Reuven Feuerstein, whose work is discussed in considerable detail in the next chapter.

In a paper given as part of a special session entitled "Study of the Abnormal Child" at a meeting of the American Orthopsychiatric Association, Luria summarized some of the issues Soviet psychologists and educators were encountering as they attempted to identify children with learning disabilities for placement in appropriate school settings. Luria (1961, pp. 2–4) distinguished four groups of children who perform poorly in school: (a) children of normal intelligence who under-perform as a result of emotional problems; (b) children with an actual biological impairment such as brain damage; (c) "weak children" whose school performance is adversely affected by their poor living conditions, including disease and malnutrition; and (d) children with "partial defects" who have normal intelligence but whose development is hampered by another problem such as hearing impairment. He explained that traditional educational and psychological diagnoses often failed to distinguish between these groups and, consequently, children with mental retardation, deaf children, and children with poor attitudes toward school were lumped together into institutions where few received appropriate support that allowed for learning to occur.

It is in this regard that Luria took a stand against traditional quantitative approaches to measuring intelligence, arguing that "psychometric tests do not close the problem; they only open the problem" and proposing instead that "the most important problem is that we have to pay more attention not only to the diagnosis, but also to the prognosis of the developmental potential of these children" (p. 5). He explained that much empirical work had been carried out in the Soviet Union investigating an alternative to such tests that was grounded in Vygotsky's writings on the "zone of potential development" (ibid.). Luria then went on to illustrate the concept with the example of three children each of whom received an IQ score of 70 on a traditional test. Acknowledging that "the first rule for every testing psychologist is to consider only those performances which are done by the child independently" (p. 6), Luria explained that the ZPD requires that assistance be given to the child during the assessment. The "prognostic value" of such an approach lies in the analysis of (a) the child's use of the assistance and (b) the extent to which the child's performance improved when given assistance. Additional insights can be gained by later testing the children again but without assistance in order to evaluate improvements in their independent performance, a concept Luria referred to as "the principle of transfer" (p. 7). Luria suggested that this multistep approach to assessment allows for a more accurate picture to emerge of the children's level of cognitive functioning, as some children benefit greatly from assistance and others do not, and some but not all children are able to maintain improved performance after assistance. He concluded, "They [the three children in his example] may be quasi-identical in a *statistical* approach, but they are not identical in a *dynamic* approach, in the zone of their potential development" (ibid., italics added).

The significance of Luria's paper is not only that it preceded major publications of Vygotsky's work in English but that it also predates all of the work that has come

to be known as dynamic assessment. In fact, the earliest DA research to appear in English and gain widespread attention in education and psychology was the work of Budoff (e.g., Budoff, 1968; Budoff and Friedman, 1964), and Budoff cites Luria as instrumental in the development of his particular approach to DA. Budoff's work, in turn, was built upon by other DA researchers, including Campione and Brown and Carlson and Wiedl. In addition, this presentation also demonstrates Luria's impact on DA research through his use of the term "dynamic" to distinguish assessment procedures that made full use of the learner's ZPD from those that did not and his suggestion of pretest–mediation phase–posttest methodologies and transfer tasks.

2.4.2 Objectivity and Experimental Research

However, as alluded to above, Luria's presentation to the American Orthopsychiatric Association also contains the seeds for the greatest bifurcation among DA approaches – the role of psychometrics. Luria himself called for the use of "objective methods" that would lead to the "qualifications" of children's learning problems (in his presentation he offers as an example of an objective method the use of auditory stimuli during experiments in order to differentiate children with concentration problems and children with hearing difficulties from children whose learning problems were rooted in something else). For Luria, then, objective methods were needed *in place of* psychometric ones. Ironically, this point was somehow lost on many in his audience. For example, the session discussant and then vice president of the Association, Arthur Benton, responded to Luria's presentation by first noting the latter's objections to psychometric tests and then stating the following:

> I think that we must remind both ourselves and him that the term "psychometric," as it is currently used in this country [the US], means objective psychological (and often psychophysiological) evaluation and not merely a single test score. American "psychometrics" approximates the objective methods used by the Soviet scientists. (p. 15)

This confusion of the terms objectivity and psychometrics has had important consequences for DA research. Even today, debates continue over the appropriateness of traditional psychometric methods in DA procedures. Kozulin (1998, p. 71) summarizes the issue with the following question: "Should one focus on the quantitative difference between the child's pre-intervention and post-intervention performance, or should the emphasis be placed on the qualitative, structural changes in the child's responses?" Recognizing some of the impressive results obtained in interventionist DA by quantifying the ZPD (e.g., Brown's use of the Graduated Prompt Approach has led to successful differentiation of children with various learning difficulties), Kozulin suggests that Vygotsky's primary emphasis was on "child-oriented qualitative evaluation" of the type conducted by those pursuing interactionist approaches to DA, such as Feuerstein and his colleagues (p. 72).

Minick (1987) critically analyzes current DA methods and their interpretations of the ZPD and argues that some DA researchers have been so preoccupied with

preserving the psychometric properties of their instruments and procedures that they have lost sight of the explanatory power of the ZPD. He points out that Vygotsky proposed the use of the ZPD in contrast to symptomatic assessments that describe an individual's abilities but do not explain them. For Vygotsky, psychological assessments usually are merely descriptive; they fail to illuminate developmental processes, and are therefore no more useful than a doctor diagnosing a patient with a cough as suffering from a cough! Such a diagnosis merely describes what the patient already knows. It explains nothing and offers no insight into how the malady can be remedied. However, by making an individual's ZPD the core of the assessment procedure, "we gain the potential for directly studying that which most precisely determines the level of mental maturation that must be completed in the proximal or subsequent period of his age development" (Vygotsky, 1984, p. 165, cited in Minick, 1987, p. 118). This is the case because the point of assessment in the ZPD is to externalize those processes that are still maturing, and by externalizing them the mediator can intervene in their development. In an interactive, clinical assessment, the cognitive processes that exist on the intermental plane as the mediator and the learner engage cooperatively in a task become transformed and internalized. It is in this way that assessment in the ZPD does much more than explore one's potential for change – it actually helps the individual to change. Thus Minick concludes that:

> To assess the psychological functions that are currently maturing, to predict the proximal stage of a child's development, or to develop programs of education and remediation designed to further that development, the assessment of the ZPD must focus on the qualitative characteristics of the interaction between the adult and child. (p. 137)

As will become clear in the sections that follow, clinical approaches to DA are far less concerned with the test instruments and procedures than with understanding and promoting the learner's development. This perspective is best captured by Vygotsky's maxim that "we must not measure the child, we must interpret the child" (Vygotsky, 1998, p. 204).

2.5 Conclusion

In this chapter I briefly outlined the Sociocultural Theory of Mind developed by Vygotsky that provides the basis for Dynamic Assessment. This theoretical perspective posits a mediated rather than direct relationship between humans and the world. This means that just as our concrete activities are mediated by the physical tools our culture provides, our mental activities are mediated by psychological tools, which are the forms of cognition that arise through the internalization of our interactions with others and our use of symbolic artifacts. In other words, our socially mediated activities change not only our surroundings but also ourselves. Cognitive development is the internalization of external forms of mediation and their reemergence as psychological tools, which allow us to mediate our functioning, an ability Vygotsky described as self-regulation. At any point in time,

individuals' abilities include functions that have been fully internalized as well as other functions that are still in the process of developing. The purpose of psychoeducational assessment, from a Vygotskian perspective, is to understand the full range of individuals' abilities.

In the context of assessment, Vygotsky proposed his famous concept, the Zone of Proximal Development, as a means of capturing both *developed* and *developing* abilities. As a logical corollary to the view of abilities as internalized forms of mediation, Vygotsky argued that what individuals are able to do in cooperation with others indicates their future independent performance. Consequently, traditional assessments, which isolate individuals, should be abandoned in favor of procedures that require examiners to mediate examinees' performances in order to reveal the full range of their abilities. Moreover, because mediated interactions are the driving force of development, this type of assessment is also an instructional activity.

Vygotsky himself emphasized the implications of the ZPD for assessment, as in his research on IQ testing, but foremost in his thinking was how development could be promoted through interactions that are sensitive to the ZPD. When Luria introduced the ZPD to colleagues in Europe and the USA, the quantitative and qualitative orientations immediately attracted attention. In part, this was due to the dominant traditions in testing, which called for objectivity through standardization and statistical analysis. Of course, Luria's understanding of objectivity entails not standardized procedures but rather interactions that proceed according to theoretical principles, in which case a flexible, open-ended approach to mediation is not only acceptable but essential to co-constructing a ZPD with a learner. Both these interpretations of the ZPD have important consequences for DA. In the next chapter, we will consider the leading methods in both interventionist and interactionist DA. As we will see, both the psychometric and clinical orientations to DA have produced impressive results in our understanding of mental functioning and the dynamics of their development.

Chapter 3
Prevailing Models of Dynamic Assessment

Abstract This chapter presents an overview of the leading approaches to DA that have emerged around the world in the decades since the introduction of Vygotsky's work outside Russia. The two broad schools of thought on DA, interventionist and interactionist, are introduced, their strengths and drawbacks assessed, and key studies in their research literatures discussed. Interventionist DA, which emphasizes standardization, offers special advantages such as the ease of generating results for large numbers of learners that can be easily compared. Of course, standardizing interactions places limitations on the mediation that can be offered to learners thereby decreasing the chances of co-constructing a ZPD. Particular attention is given to interactionist DA, which is more in line with Vygotsky's vision of how the ZPD can be used to reorient education to learner development and is therefore more relevant to the classroom. Among the DA models reviewed are those associated with Budoff; Guthke; Carlson and Weidl; Campione, Brown, and Ferrara; and Feuerstein.

Keywords Standardization, dialogic interaction, interventionist DA, interactionist DA, zone of proximal development

3.1 Introduction

Imagine the following scene: an introductory university foreign language class is hard at work engaging in a conversation activity, in pairs, that requires the use of new vocabulary as well as some challenging grammatical structures. The teacher is circulating the room, pausing to listen to pairs of students, who of course become more serious and focused as the teacher approaches. Now imagine that the teacher has devised a set of prompts and hints to offer students if they needed it, in this way mediating their performance. Things are going along smoothly until she stops by a pair of students who are struggling with the activity and who, she realizes, need assistance that she had not foreseen. What should the teacher do in this instance? Should she abandon the mediation she had prepared in order to help her students or

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should she let a valuable teaching and learning moment pass because she only wants to offer the students a certain kind of support?

Many teachers would likely advocate altering the planned mediation in favor of providing optimally effective support and instruction. After all, why resist doing what is best for the learners? One might reasonably argue that identifying the source of a learner's difficulty and responding appropriately is a hallmark of good teaching. And yet, if the scenario above were changed to an assessment activity rather than a pedagogical one, all bets would be off. For example, some would contend that the teacher should not interact at all with the students because it might bias outcomes in favor of some learners but not all. Even proponents of Dynamic Assessment, who would all recommend providing some form of mediation, would be split over the question of whether the teacher should stick to her original plan or interact flexibly with the learners. The instruction–assessment dualism is so well entrenched that even DA practitioners continue to wrestle with how to integrate mediation into their procedures without completely abandoning traditional assessment principles. The problem can be summarized with the following question: Is the procedure focused exclusively on understanding and promoting learner development or does it have additional purposes? DA procedures that maintain a development orientation favor flexible mediator–learner interaction. Indeed, from this perspective, withholding support that one suspects would foster learner development may be considered unethical. On the other hand, when other purposes are introduced, such as producing results for large numbers of learners that can be easily compared, standardizing procedures becomes an appealing option. Standardized approaches are also attractive to investigators wishing to study the effectiveness of DA using traditional research methodologies, which often call for large sample sizes and quantified results.

Of course, placing limitations on the mediation that can be offered to learners decreases the chances of co-constructing a ZPD, but some DA practitioners are willing to make this sacrifice to meet the demands of their assessment or research context. As I hope to demonstrate in this chapter as we review the major approaches to DA, both the interventionist and interactionist frameworks contribute to our understanding of the processes of development in ways NDA does not. We will begin with interventionist DA, since this orientation continues to incorporate principles of NDA, and then move toward Reuven Feuerstein's approach to interactionist DA, which I argue is more in line with Vygotsky's vision of how the ZPD can be used to reorient education to learner development.

3.2 Interventionist DA

As explained in Chapter 1, the defining characteristic of interventionist approaches to DA is that the mediation offered to learners is standardized. Mediators are not free to respond to learners' needs as these become apparent during the procedure but must instead follow a highly scripted approach to mediation in which all

prompts, hints, and leading questions have been arranged in a hierarchical manner, from implicit to explicit, and usually assigned a numerical value. This move is motivated by a desire to maximize the assessment's objectivity, defined in traditional psychometric terms and not as the concept was understood by Vygotsky (Luria, 1961; see also discussion in preceding chapter). However, producing outcomes in a quantified form as scores means that learner performance can be discussed using constructs from NDA, such as generalizability, validity, and reliability. More will be said about this in the next chapter, but for now it is worth noting that interventionist approaches may be more readily accepted than interactionist DA in assessment contexts that are accustomed to psychometric testing. That is, services and programs that require test scores of IQ, college aptitude, or language proficiency might have fewer reservations about the legitimacy of DA in an interventionist form than in the highly interactive and qualitative approach discussed later in this chapter. As we will see, the assessment context, including various stakeholders, is an important consideration when choosing a DA procedure.

3.2.1 Budoff's Learning Potential Measurement Approach

Budoff's work emerged out of a concern over the validity of scores produced using standardized measures of intelligence. According to Budoff, traditional intelligence assessments may be adequate for understanding the abilities of many children, but for some – especially those from low socioeconomic backgrounds – interpretations of assessment outcomes are compromised by the disjoint between the culture of the school and the children's own culture (Budoff, 1987; Budoff and Friedman, 1964). In other words, poor performance on a traditional intelligence test may be due to a lack of certain kinds of educational opportunities rather than to cognitive impairment. Inspired by Luria's (1961) work with underachieving students in the Soviet Union, Budoff reasoned that the effects of a child's background on his test performance could be mitigated to a degree if the child were familiarized with the test and taught strategies for solving the kinds of problems it contains (Sternberg and Grigorenko, 2002, p. 73). In Budoff's view, if children improved their test scores as a result of training, this change should be taken as an indication of their *learning potential*.

Budoff's is the earliest DA research outside of the Soviet Union and it also remains the closest to NDA. He used only test instruments whose psychometric properties were well established, such as Kohs Learning Potential Task and the Raven Learning Potential Test, and his interpretations of learners' abilities were based exclusively on their test scores. In fact, Budoff pioneered the *sandwich* format of DA (see Chapter 1), which was taken from the classical research design in experimental psychology: pretest – treatment – posttest. Budoff's approach to mediation resembles the "treatment" phase in that the experimenter follows a standardized procedure to instruct learners in problem-solving strategies. Thus, Budoff's approach is like NDA except that it allows learners to be trained and retested.

In high-stakes testing, coaching students to improve scores has become commonplace (Cronbach, 1990, pp. 82–86). One might legitimately question whether Budoff's work can be considered "dynamic." I would like to suggest that the answer lay in the purpose behind the procedures. In coaching programs, the aim is to help students improve their score on a particular test in order to gain admission to a university or achieve some other objective (ibid.). Budoff is interested in improving learners' test performance because he believes the degree of change reveals their potential for future learning (Budoff and Friedman, 1964). It is true that, unlike other approaches to DA, Budoff does not mention cognitive development as a goal of the procedure. Nevertheless, he shares with other DA proponents a conviction that cognitive abilities are amenable to change if appropriate opportunities are provided. To recall our discussion in Chapter 1 of Sternberg and Grigorenko's (2002, p. 30) proposed distinction between "dynamic testing" and "dynamic assessment," Budoff's Learning Potential Measurement may be considered an example of the former since it is intended to explore potential for development rather than promote development.

Budoff's approach makes an important contribution to DA's claim that cognitive abilities are dynamic and not stable because participants in his work responded differently to the mediation phase. Budoff was able to group individuals according to the differences in their pretest and posttest scores, demonstrating that they benefited differentially from training. In this way, two learners who performed similarly on their pretests might perform differently on their posttests, or vice versa. According to Budoff, such information was crucial to understanding their potential for future learning. He proposed grouping individuals into one of three categories: *high scorers* are learners whose initial pretest performance is good; *gainers* are individuals who show improvement after training; and *nongainers* are learners who perform poorly on both the pretest and posttests.

Budoff's Learning Potential Measurement, with its standardized mediation phase and reliance on traditional testing instruments, is best suited for contexts involving large numbers of individuals. One can imagine, for instance, adapting this approach to use in the administration of a language proficiency exam to select candidates from a large pool for acceptance into a university and possible placement in an intensive academic English program. The approach is not intended for classroom applications. One notable feature of Learning Potential Measurement is that there is no follow-up to the posttest; scores are simply reported to school officials. Budoff and his colleagues have yet to outline an intervention program for participants based on test performance (Sternberg and Grigorenko, 2002, p. 83), and they have not investigated how learners' gains might be affected by the kind of instruction offered during the mediation phase.

Budoff's reluctance to alter mediation during administration of a Learning Potential Measurement is due to his commitment to standardizing all aspects of the procedure. He has criticized DA approaches such as Feuerstein's (discussed below), arguing that "it is difficult to distinguish the contribution the tester makes to student responses from what the student actually understands and can apply" (Budoff, 1987, p. 56). Budoff's perspective is clearly grounded in more traditional approaches to

psychological measurement, and so he is concerned with determining how much of a test performance can be attributed to the "environment," as represented by the tester, and how much is to be attributed to the student. This contrasts sharply with Vygotsky's understanding of the person–environment relationship, as seen in Elkonin's (1998, p. 299, italics added) observation that for Vygotsky interaction is "not a factor of development, not what acts from outside on what is already there, but a *source* of development." This important point will be returned to in the next chapter when we consider psychometric criticisms of DA.

3.2.2 Guthke's Lerntest Approach

Guthke and his colleagues at Leipzeig University have built upon Budoff's work in the development of a number of their own DA procedures, which they refer to collectively as the *Lerntest* (see Guthke, 1982), or more recently as the Leipzeig Learning Test (LLT). Making specific reference to Vygotsky's understanding of cognitive development, Guthke has argued that individuals have not just one ZPD for general intelligence or learning ability, but multiple domain-specific ZPDs (Guthke, 1993). His work has sought to move DA procedures beyond the domain of intelligence testing to include content areas, such as language aptitude (Guthke et al., 1986).

Contrary to Budoff's preference for separating the mediation phase from the test administration phases – and, consequently, perpetuating the assessment–instruction dualism – Guthke's incorporates mediation into the test itself. The form of mediation provided in the LLT has changed considerably over the last two decades although it remains standardized. In early versions of the test, only one type of assistance was offered to examinees who produced an incorrect response: they were asked "to think properly once again" (Guthke et al., 1986, p. 905). If examinees were still unable to produce the correct response, the examiner revealed the solution and they moved on to the next item. More recently, Guthke and his colleagues have devised a menu of five standardized hints that they use when administering the LLT (see Guthke and Beckmann, 2000). The following example illustrates how an LLT language aptitude assessment might be conducted.

Examinees are given sets of geometric figures paired with words from an invented language and are asked to complete a variety of tasks, one of which is to complete a pattern, as in Fig. 3.1.

If an examinee's first attempt to complete the pattern is incorrect, she is provided with the following vague hint: "That's not correct. Please, think about it once again." If the second attempt is also unsuccessful, the examiner offers a more explicit hint: "That's not correct. Think about which rows are most relevant to the one you are trying to complete." If the third attempt fails, the examiner offers an even more explicit hint: "That's not correct. Let's look at rows three and four." If the response is still inaccurate, a very explicit hint is offered: "That's not correct. Let's look at rows three and four and focus on the differences in both the positions

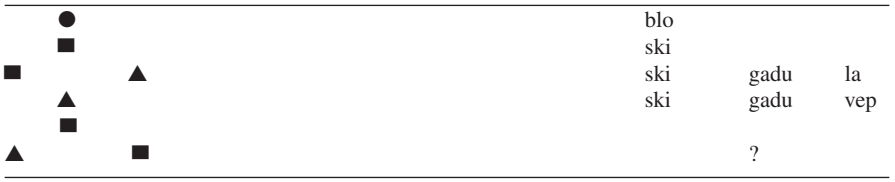


Fig. 3.1 Leipzeig Learning Test (LLT) language aptitude diagnostic (Guthke et al., 1986, p. 906)

of the objects and the words." If this fails to produce the correct response, the examiner provides the correct pattern and explains why it is correct: "That's not correct. The correct pattern is *gadu ski la* because we see that *gadu* represents the triangle, *ski* represents the square, and *la,* which indicates the objects' relative horizontal positioning, should be the final element in the clause, as can be seen in rows three and four." At this point, the examinee will move on to the next item on the test. While the items become increasingly complex, the same standardized set of five prompts is used throughout. In another variation, the assessor also asks examinees to explain the rule underlying the patter whenever they produce a correct response and in this way identify instances of random guessing.

Guthke has devised several innovations that make the LLT easily adaptable to a variety of assessment contexts, including the classroom. For instance, a chapter or unit test might be adapted for LLT administration and the results integrated with ongoing instruction. One advantage of the LLT is that it moves well beyond Budoff's classification of participants as *high scorers*, *gainers*, and *nongainers*. Guthke and his colleagues have developed a system for reporting LLT results that includes both a score and a profile for each learner. The former is based on the number of prompts needed and the amount of time taken to complete the test. The latter comprises an analysis of the types of errors the examinee made (e.g., difficulty remembering which invented words matched which symbols, problems processing longer sequences, etc.), and the forms of assistance to which the examinee was most responsive (e.g., being given a second chance, receiving a reminder, and in-depth explanation of the solution).

An additional development over Budoff's methodology is that examinees' profiles serve as the basis for an intervention or teaching phase in which instruction is offered to individuals or to groups in order to redress problems that arose during the assessment. The LLT is therefore dynamic in the sense that mediation is part of the assessment but also because this assessment is tied to subsequent teaching. Thus, while Budoff simply sought to diagnose and categorize learners on the basis of their responsiveness to the assistance he proscribed, Guthke uses these insights into learners' abilities to promote their development. The teaching phase is followed by a parallel version of the initial assessment and examinees are once again offered hints as needed. This second administration of the test does not assume that all examinees will complete all items without assistance but, rather, it is expected that the hints required will be fewer and less explicit. If this is indeed the case, it is argued that the examinees have developed, and this is an explicit goal of the LLT.

3.2.3 Carlson and Wiedl's Testing-the-Limits Approach

Wiedl, a colleague of Guthke, has codeveloped an alternative version of the LLT approach, known as Testing-the-Limits. Like Guthke, Carlson and Wiedl also employ standardized hints and requests that learners verbalize their reasoning. However, this latter form of mediation is much more extensive than in the LLT. While Guthke uses verbalization primarily to control for learners producing correct responses by guessing, Carlson and Wiedl advocate questioning learners' reasoning after both correct and incorrect responses in order to more fully understand learners' thought processes. In their view, understanding how learners arrive at their answers supercedes whether or not the answer is correct.

Although their research is framed within information processing theory, the Testing-the-Limits approach also embodies many Vygotskian principles. For instance, many of the hints used in this approach are intended to mediate learners' planning processes, which Carlson and Wiedl recognize as an important feature of performance and a common cause of low test scores (Kar et al., 1993, p. 14). They explain:

> Planning is a uniquely human cognitive process and plays a central role in the general regulation of any goal-directed activity. It entails making decisions, judgments and evaluations and includes the generalization, selection and execution of strategies in cognitive performance…planning, therefore, may be viewed as the essence of human intelligence. (Ibid.)

Planning figures prominently into Vygotsky's account of internalization. Indeed, as Lantolf (2003, pp. 350–351) argues, planning relates to the human ability to perform actions on the mental plane without needing to do so physically, and this has profound implications for human activities ranging from building a skyscraper to baking a cake.

Relying on the work of Duncker (1945) and Claparede (1933), Carslon and Wiedl (1992, p. 163) have developed various levels of standardized verbalization prompts designed in some cases to encourage learners to think aloud so that the researchers can better assess where problems occur during task solution ("Try to think aloud. I guess you do so when you are alone and working on a problem" or "Think, reason in a loud voice, tell me everything that passes through your head during your work searching for the solution to the problem"), while in other situations the verbalization itself is a means of intervening in a learner's thinking by encouraging her to approach a task in a particular way ("Tell me what you see and what you are thinking about as you solve the problem. Tell me why you think the solution you chose is correct. Why is it correct and the other answer possibilities wrong?"). They advocate interrupting test administration as necessary to provide hints and elicit verbalization rather than introducing a separate mediation phase. As with the LLT, the standardized approach to mediation makes it relatively easy for examiners and classroom teachers to learn to administer the procedure. Interpreting and reporting results, however, can be challenging. Typically, Testing-the-Limits procedures produce the same kinds of scores and profiles as the LLT but the profiles may be more involved as they must take account of learners' verbalizations. Carlson and Wiedl have not developed their own instructional program based on the

results of their assessments, but prefer instead to report scores and profiles to assessment stakeholders and make recommendations for future instruction.

Recently, Wiedl has begun to use the Testing-the-Limits approach with various populations, including dementia patients (Wiedl et al., 2001), but the majority of research in this tradition has been concerned with underprivileged children. Carlson and Wiedl concur with Budoff that conventional tests often underestimate the abilities of learners from low socioeconomic backgrounds. Their analysis of learners' verbalizations has led them to conclude that poor test performance can often be attributed to the following: learners are ineffective in how they orient to problems; they have difficulty maintaining focus; and they experience high levels of frustration (Dillon and Carlson, 1978, p. 437).

Research on the Testing-the-Limits approach has primarily concentrated on comparing the results of this procedure to those obtained from non-dynamic administrations of tests. Another area of interest has been the effect of altering the order and combination of mediation techniques with different populations of learners (e.g., offering hints during the test and eliciting verbalization afterwards; relying only on verbalization during and after the test; using hints and verbalization during the test, etc.). A consistent finding of particular interest is that learners who typically perform poorly during NDA tests show greater improvement when asked to verbalize than do those learners whose initial performance is already high (Kar et al., 1993). Interpreted within a Vygotskian framework, one could argue that the high performers do not need to re-externalize cognitive processes they have already developed and so do not benefit from the verbalization condition while learners who have not yet fully developed the requisite capabilities are better positioned to regulate their thinking through verbal speech.

The degree to which the Testing-the-Limits approach integrates assessment and instruction is difficult to determine. Clearly, this approach stands to contribute more information about learners' abilities than either Budoff's Learning Potential Measure or Guthke's Lerntest. Nevertheless, Carlson and Wiedl have yet to actually integrate assessment results with an instructional program. Typically, the scores and reports that are generated for individuals and groups of learners are used for research purposes or are given to stakeholders along with recommendations. However, proposing an instructional course of action is very different from continuing to work with learners to mediate their development. This issue of "follow-up" to a DA procedure is a driving force behind the Graduated Prompt approach, which we will now consider.

3.2.4 Brown's Graduated Prompt Approach

Brown and her colleagues have devised a series of DA procedures for specific content domains, focusing especially on reading and math with normal and special children (see Brown and Ferrera, 1985; Campione et al., 1984). Like other interventionist approaches to DA, the Graduated Prompt approach relies on a fixed

menu of standardized hints and leading questions that are used during the administration of the test after each item or problem. This mediation is arranged from most implicit to most explicit and culminates with the correct answer. The unique contribution of the Graduated Prompt approach, and what makes it especially important from a Vygotskian perspective, is its inclusion of *transfer tasks*.

In their procedures, examinees are first presented with questions or tasks and, when they experience difficulties, the examiner offers mediation intended to help them discover and applied principles necessary for solving the problems. Once these are mastered so that the examinees can solve the problems independently, the researchers then attempt to discover how far the individuals can transfer their new ability to novel problems. Thus, these Brown offers a dimension to the emerging picture of development that was absent from the other DA approaches we have considered. Guthke, basing his argument on the ZPD, suggested that perfect performance on the posttest is not the sole indication that development has occurred; it may be the case that learners have developed and now require fewer and less explicit prompts. Brown and her colleagues, also drawing on Vygotsky, claim that an additional and crucial feature of development is that an individual's performance change not only on a repetition of the original test (or a parallel test) but on different kinds of tasks.

After examinees are able to independently solve "novel exemplars" of the original problem types, they are given a set of "near transfer" problems which integrate the same principles as the original task but in new combinations (Campione et al., 1984, p. 81). Then the examinees are presented with a set of "far transfer" problems requiring "the use of a new but related rule or principle in addition to the familiar ones" (ibid.). Finally, the examinees are asked to respond to a set of "very far transfer" problems that are even more complex. Based on the examinees' performance throughout the procedure, the researchers generate learner profiles comprising two axes – one measuring how quickly they are able to learn the new patterns and the other measuring how far they can extend this knowledge to novel problems (see Brown and Ferrara, 1985).

Brown's interest in measurement is characteristic of interventionist DA but is a clear parting of the ways from Vygotsky. She and her colleagues explicitly reference Vygotsky and the ZPD in explaining the theory of development underlying their approach (Campione et al., 1984). Indeed they praise Vygotsky's explication of the processes of development and the "interactive learning situations that provide structured guidance for the learner" (p. 80). However, while Vygotky focused on optimally promoting development through mediation, Brown and colleagues are more interested in the "metric of learning efficiency"(p. 82), which they define as "the number of hints required for the attainment of the learning criterion" (ibid.). Thus, although they include transfer of learning as part of their procedure, they are concerned with quantifying as an "index of speed of learning" (Brown and Ferrara, 1985, p. 300) the amount of help required for a learner to quickly and efficiently reach a prespecified end point. Using a train metaphor, Elkonin (1998, p. 300) states that those interested in speed and efficiency of learning are concerned with how quickly a train moves toward the final station along a set of tracks. Vygotsky,

on the other hand, was not interested so much in the *speed* of the train along the already constructed track but with helping the person lay down *new* track leading toward a station that is potentially always being relocated (see Newman and Holzman, 1993, on development as creativity and transformation).

While transfer tasks may bear a superficial similarity to using posttests in experimental research to ascertain the effects of a treatment, transfer in the Graduated Prompt Approach to DA can be distinguished by the continuing provision of mediation. That is, at no point in the procedure does the "treatment" end so that examinees are required to perform independently. Of course, if they do not encounter problems, they do not receive mediation. However, the examiner is always ready to support them when their performance begins to breakdown. Linking sessions together in this way is a considerable advance in DA methodologies because, if followed to its logical conclusion, assessment and instruction are fully integrated. Of course, Brown and colleagues do not take the matter so far. Transfer and mediation eventually end whenever examinees have efficiently run through all the tasks. However, from a Vygotskian perspective, each transfer task continues and extends previous work, with examiners continuing to offer mediation, and so learner development is ongoing. The "assessment" need never end because there are always more difficult tasks and there is no endpoint to development. This is the idea behind organizing all assessment and instruction around the ZPD, which is precisely what Reuven Feuerstein has attempted to do in his approach to DA.

3.3 Interactionist DA: Feuerstein's Mediated Learning Experience[1]

Although Feuerstein's approach to DA was developed independently from Vygotsky's work[2] the similarities are such that in many ways the research and instruction being done at Feuerstein's International Center for the Enhancement of Learning Potential in Israel are a continuation of the defectology work begun by Vygotsky and Luria more than 70 years ago. There are basic commonalities of course between Feuerstein's model and those we have considered thus far. However, Feuerstein differs from other DA researchers in important ways. He has expended considerable effort to articulate a view of human abilities that, as we will see, is closely aligned with Vygotskian theory. In addition, Feuerstein's model is the most

[1] Mediated Learning Experience (MLE) appears in Feuerstein's work as a part of SCM theory (see his discussion of mediated and direct learning) but it is also used to refer to his approach to DA. Both these meanings of MLE are preserved here; the context in which the term appears should indicate whether it is referring to a type of learning or a DA methodology.

[2] While Feuerstein and his colleagues have always insisted that they developed SCM theory and the MLE concept without any knowledge of Vygotsky's work, they were at least aware of Vygotsky: Feuerstein's classic text on DA (Feuerstein et al., 1979) references the 1962 translation of Thought and Language in a footnote providing examples of psychologists who have expressed dissatisfaction with traditional intelligence measures.

comprehensive approach to DA in that it includes similar innovations to those proposed by other DA practitioners, such as Carlson and Wiedl's emphasis on learner verbalization and Brown's concept of transfer. Most importantly, Feuerstein fully integrates assessment and instruction so that the one does not exist apart – and, indeed, is indistinguishable from – the other. Although he does not employ Vygotsky's terminology, I argue below that Feuerstein realizes Vygotsky's vision of creating a single educational activity that involves co-constructing a ZPD with learners in order to promote development. For this reason, I also argue that Feuerstein's approach holds the most promise to transform classroom activity.

3.3.1 Feuerstein's Structural Cognitive Modifiability Theory

The work conducted by Feuerstein and his colleagues (Feuerstein et al., 1979; Feuerstein et al., 1980; Feuerstein et al., 1988; Feuerstein et al., 2003) as well as the research of those inspired by Feuerstein (Karpov and Gindis, 2000; Lidz, 1991; Peña and Gillam, 2000) is rooted in the basic belief that it is possible to intervene in the development of human cognitive abilities. This conviction has been formalized as Feuerstein's theory of Structural Cognitive Modifiability (SCM), and is supported by numerous cases of individuals who have benefited from Feuerstein's assessment procedures and cognitive education program, including several "success stories" such as one young boy labeled as mentally retarded who eventually went on to earn a PhD in psychology (Feuerstein et al., 1988, provide additional examples of these remarkable cases). According to SCM theory, human beings are "open" rather than "closed" systems, meaning that human cognitive abilities are not fixed traits resulting purely from biology in the way that one's height and hair color are determined genetically, but rather they can be developed in a variety of ways depending on the presence – and the quality – of appropriate forms of interaction and instruction (Feuerstein et al., 1988, p. 5). In Vygotskian terms, this is equivalent to the claim that the uniquely human forms of consciousness emerge through participation in object-oriented social activity.

For Feuerstein and his colleagues, the psychological functioning of individuals living in a rapidly changing, technological, late Modern society can hardly be characterized by stable and predictable patterns; on the contrary, "modifiability" and "autoplasticity" are more important than ever (Feuerstein et al., 1988, p. 62). However, he notes that in the context of education, and particularly in educational testing assessment, the ability of human beings to change – to develop abilities that are qualitatively different from any they previously displayed and that could not have been predicted a priori – encounters a good deal of opposition from the widely accepted but often unstated belief that mental abilities are "static."[3] Reminiscent of

[3] Indeed the use of the terms "static" and "dynamic" in the DA literature is rooted not only in differences regarding assessment administration procedures but also in the underlying beliefs concerning the stability or modifiability of cognitive functions.

the discussion of Valsiner's models of the future in Chapter 1, Feuerstein and his colleagues argue that most education systems continue to assume that learners' *future* functioning can be perfectly predicted on the basis of their *present* performance, "ignoring a possibility that the predicted destiny may not materialize if powerful intervention takes place" (Feuerstein et al., 1988, p. 83). The authors continue:

> The belief in the predictability of certain biopsychological signs is so strong that some professionals think they can (and must) precisely forecast the whole life trajectory of a young child with retarded performance, going out of their way to make sure that the parents understand that nothing can be changed. (pp. 83–84)

Elsewhere, Feuerstein stresses that SCM theory does not differ from other approaches to cognitive assessment in its recognition and identification of individuals exhibiting low levels of achievement. However, "by considering this level as pertaining only to the manifest repertoire of the individual, it [SCM theory] takes into consideration the possibility of modifying this repertoire by appropriate strategies of intervention" (Feuerstein et al., 1979, p. 95). Put another way, SCM can be seen as a conviction that the predictive power of NDA can be undone by helping an individual create a new developmental trajectory. This idea is captured nicely by Feuerstein's preference for the term *retarded performers* rather than *retarded individuals,* emphasizing that it is individuals' performance – their interaction with people and objects in the world – that is "retarded" and in need of modification.

A key component of SCM theory is mediation, which Kozulin (1998) argues is understood in very similar ways by both Vygotsky and Feuerstein. Feuerstein has illustrated mediation in the following way. In direct, nonmediated learning the child interacts with his environment in a trial-and-error, experimental manner. In this type of learning, which closely resembles the stimulus–response conditioning model of the behaviorist paradigm, the child remains trapped in the here-and-now situation, unable to interpret the world or to construct meaning in a way that will allow him to see connections between events, situations, and individuals. In mediated learning, the stimulus–response model is altered so that the child is no longer interacting with his environment in a direct, haphazard fashion. Instead, an adult or more competent peer enters into a relationship with the child and "selects, changes, amplifies, and interprets objects and processes to the child" (Kozulin, 1998, p. 60). Feuerstein terms such an interaction a Mediated Learning Experience (MLE). The following section describes MLE and illustrates it within the context of Feuerstein's research with special children.

3.3.2 Mediated Learning Experience

Feuerstein et al. (1988) explain that a child who has had only direct learning experiences is left with an "episodic" grasp of reality. Feuerstein has referred to such children as *culturally deprived. Culturally deprived* individuals are not "deprived" in the sense of not having gained access to a particular culture. Rather, according to Feuerstein and his colleagues, these individuals have not acquired *any* culture.

Of course, being born into a community and living among other people the child will have been exposed to a culture, but for Feuerstein this is not enough. He maintains that what separates humans from other animals is that adult members of a community mediate the world to their young through language, gesture, ritual, and including them in the various activities of daily living. Thus, the culturally deprived child is one who has not had his culture mediated to him in a sufficient or adequate manner (Kozulin, 1998, p. 68). Kozulin explains that "the lack of mediation is observed in children whose parents and other caretakers do not extend their attention beyond the here-and-now satisfaction of the children's vital needs …. Separate experiences, linked only to specific stimuli or reinforcers, remain unconnected in the child's mind" (ibid.). Kozulin goes on to assert that the culturally deprived child lacks many of the cognitive functions necessary for subsequent learning both in and out of school, including the ability to plan, to make comparisons of similarities and differences, to formulate and test hypotheses, and to develop representations, among other processes (ibid.).

Feuerstein explains the relationship between mediated and direct learning experiences and the fundamental importance of the former in the following way:

> The more a child is subjected to mediated learning experiences, the greater will be his capacity to benefit from direct exposure to learning. On the other hand, a lack of MLE will produce an individual who will benefit very little from direct encounters with learning tasks. (Feuerstein et al., 1988, p. 58)

In Vygotskian terms, the mediator in a MLE facilitates the child's internalization of their interaction, moving it from an *intermental* to an *intramental* plane of functioning (Vygtosky, 1978). In this way, the child's social interaction with the mediator provides a model that the child can imitate and transform, developing beyond his current capabilities.

In addition to culturally deprived children, Feuerstein and his colleagues (Feuerstein et al., 1979) have identified two additional groups of retarded performers: *culturally different* individuals, and those whose learning difficulties are predominantly rooted in their biology rather than cultural conditions (e.g., children with Down syndrome). While this latter group often does not show the dramatic improvement characteristic of the other two categories of learners, it is important to note that these individuals are nonetheless responsive to many of Feuerstein's techniques. Many of these children, after having been subjected to numerous non-dynamic assessments and labeled mentally retarded, turn out to be capable of very high levels of cognitive functioning. Feuerstein's conviction that even children whose cognitive challenges are the result of biology can be modified parallels Vygotsky (1994a) statements regarding deaf and blind children. Vygotsky pointed out that such children have not only a biological condition to contend with but also a social one:

> It goes without saying that blindness and deafness are biological facts and not at all of a social nature, but the teacher has to deal not so much with these facts as with the social consequences of these facts. When we have a blind child as an object of education before us, we are compelled to deal not so much with the blindness in itself, as with the conflicts which arise therefrom within the child when it enters life … Blindness or deafness, as a psychological fact, is not at all a misfortune, but, as a social fact, it becomes such. (p. 20)

Vygotsky goes on to describe how, under traditional instruction, attempts at speech would be suppressed in a deaf and dumb child, which in turn impacted upon his cognitive development and made subsequent efforts to promote speech development much more problematic. In Feuerstein's approach, this is precisely where the mediator fits in. By interposing himself between the child and the object or task, the mediator can guide the child while simultaneously assessing her responsiveness to assistance. For Feuerstein, the difficulties encountered by such children are as much a result of their biology as their social world, which often responds to "abnormal" children by withdrawing the opportunities for interaction – MLEs – that "normal" children enjoy. This is tragically ironic when one considers that these challenged children perhaps need MLE more than anyone.

The other group of children Feuerstein describes, those who are c*ulturally different*, are particularly common among immigrant populations and some ethnic minorities (e.g., Ethiopian immigrants to Israel). These learners have acquired their own culture but, owing to the divergence between the dominant culture and their own, they often struggle to bring together the ways of thinking and the representations of the world learned at home with those presented in the school setting (Feuerstein et al., 1988, pp. 97–99). This disconnect places an additional burden on the culturally different child, who must not only struggle with the school curriculum but with the norms, values, and interactional patterns that are also new.

The creation of these three broad categories of retarded performers (see Feuerstein et al., 1988, for an in-depth discussion of each of these categories and examples of subcategories) is the result of several decades of clinical work with diverse populations, especially children and adolescents usually categorized by teachers and school psychologists as learning disabled. Like Vygotsky and Luria, Feuerstein realized early on that not all the children who exhibit poor performance in school do so for the same reasons. He reasoned that if his theoretical views regarding the importance of mediated learning were correct, then an individual's modifiability could be gauged through analysis of his interactions with an expert during a session of *intensive* mediation – a dynamic assessment.

For Feuerstein, then, the MLE is the very heart of DA. During an intensive MLE – intensive because the assessor provides as much mediation and as many forms of mediation as possible – the adult mediator engages in a task with a learner, all the while noting the learner's responsiveness to mediation and making changes accordingly. The mediator's goal is to diagnose the child's potential for cognitive change. This is accomplished by actually helping the child to change *during the assessment itself*. The degree to which the child changes and the mediation required to bring about that change are both crucial components of the diagnosis. Before moving on to a discussion of the specific tasks mediator and learner engage in during one of Feuerstein's DA sessions it is important to consider precisely what constitutes an intensive mediated learning interaction. This is a topic with which Feuerstein and proponents of his approach have become increasingly preoccupied (Feuerstein et al., 1988; Kozulin, 1998; Lidz, 1991). In part, this is due to criticisms of his earlier work but it is also the result of recognition of the need to tighten up certain parts

of SCM theory, particularly as the MLE approach to DA continues to be applied to increasingly diverse contexts (see Tzuriel, 2001).

3.3.3 MLE Attributes

Feuerstein has clarified that not just any interaction between an adult and a child constitutes an MLE and that this becomes evident in the analysis of the intensive MLE sessions he and his colleagues conduct in their approach to DA. Feuerstein et al. (1988) have outlined 11 attributes of MLEs that distinguish them from other types of interaction. Figure 3.2 lists all 11 attributes and summarizes all but the first three, which are described in detail below:

The first three attributes – *intentionality and reciprocity*, *transcendence*, and *mediation of meaning* – are, according to Feuerstein, the most important in transforming a given interaction into a MLE. These are basic elements common to all MLEs and lead to the development of uniquely human forms of higher thinking, while "the other attributes, largely culturally and situationally determined, are responsible for the development of differences in cognitive style, creating great diversity in human existence" (ibid.).[4]

The first and most basic of the MLE attributes outlined by Feuerstein is intentionality, that is, the adult's deliberate efforts to mediate the world, an object in it, or an activity for the child. While it may seem obvious that a mediator must intend to mediate just as a teacher must intend to teach, this remains an important point. Intentionality, for Feuerstein, marks the MLE as the direct opposite of the haphazard, incidental learning described above. Instead, the MLE is focused on the child's cognitive development through guiding him as he participates in various activities that he would likely not be able to successfully complete on his own. As such, intentionality, according to Lidz (1991, pp. 74–75), includes a number of mediator behaviors, such as "initiating, maintaining, and terminating the interaction" but also "regulating and refocusing the child's attention and participation" during the MLE. Feuerstein et al. (1988, p. 62) provide the example of a mediator who wishes to call a child's attention to a particular object. The mediator "transforms the stimulus, rendering it more salient and attractive to the child, changing its amplitude (e.g., loudness, brightness), its frequency, and the duration of its exposure" (ibid.). Importantly, the authors argue that the intention to mediate transforms not only the stimuli but also the child and the mediator. Thus, while stimuli are rendered "more

[4] Interestingly, Feuerstein implies that the above-mentioned MLE attributes are somehow less culturally determined than the others. From a Vygotskian perspective, however, this distinction makes little sense. Here it is not just that the social gives rise to higher forms of consciousness; it is in the social that consciousness resides. All human experiences, all forms of mediation, and all forms of learning are cultural. In this way, human consciousness cannot be understood in isolation from an individual's history, and so even intentionality and reciprocity, transcendence, and mediation of meaning are part of that history.

1. *Intentionality and reciprocity*
2. *Transcendence*
3. *Mediation of meaning*
4. *Mediation of feelings of competence* – offering various forms of assistance to help the learner to successfully complete a task previously perceived as too difficult and interpreting to him the meaning of his success.
5. *Mediated regulation and control of behavior* – regulation of the child's impulsivity and attention in ways that lead to the child gradually taking on more and more responsibility for the control of his own behavior.
6. *Mediated sharing behavior* – involves the mediator communicating to the learner her own orientation to the task, her perception of its demands, reactions to problems that arise, and feelings at various stages of task completion while also attempting to elicit the child's feelings and perceptions, emphasizing the joint nature of the interaction.
7. *Mediation of individuation and psychological differentiation* – emphasizes the learner as an individual with thoughts, feelings, and abilities that may be different from but can certainly complement those of others.
8. *Mediation of goal seeking, goal setting, goal planning, and achieving behavior* – proposing and perceiving goals; planning specific actions, including the achievement of sub-goals, that will lead to task completion; using representational modes of thinking; and execution of problem-solving strategies.
9. *Mediation of challenge: The search for novelty and complexity* – attempts to mediate an activity the learner has already mastered will not produce the feeling of competence described above and may lead to boredom and frustration. MLE tasks should target what the learner is not yet capable of doing independently.
10. *Mediation of an awareness of the human being as a changing entity* – the core of Feuerstein's SCM theory, the belief that all human beings are modifiable.
11. *Mediation of an optimistic alternative* – related to the above, the insistence that individuals can be more than their present abilities suggest.

Fig. 3.2 Mediated learning experience attributes (Feuerstein et al., 1988, pp. 61–62)

salient and attractive," the child's curiosity is aroused, his attention guided and his perception focused, and the mediator does everything she can to maintain the child's alertness, including pointing out significant features, asking questions, making suggestions, gesturing, and constantly reading the child's responses and making adjustments and changes to maintain his engagement (pp. 62–63). *Reciprocity* is the term Feuerstein uses to describe this interaction since the actions of both participants are necessarily intertwined. Feuerstein also uses the term to emphasize that the child is no longer a passive recipient of knowledge but an active co-constructor of it. Lidz (1991) expands upon this notion of reciprocity, arguing

that the learner's contributions in DA are often overlooked by MLE researchers, who have tended to focus more on the specific forms of mediation used in the procedure. This is an important criticism that we will return to in the next chapter.

Intentionality contrasts with direct, incidental learning by structuring the MLE in a specific way and highlighting the most important elements of the object or activity. *Transcendence* provides an additional and related way in which a MLE differs from direct learning: the goal of the MLE is to bring about the cognitive development required for the child to move beyond the "here-and-now" demands of a given activity. Feuerstein (Feuerstein et al., 1979, p. 92) argues that true development *transcends* any specific task and manifests itself in a variety of ways under a multitude of differing conditions. It is for this reason that the MLE typically proceeds from an initial training phase on a particular problem to the tackling of "a series of tasks that represent progressively more complex modifications of the original training task" (ibid.). Feuerstein reasons that the structuring of the MLE to include tasks that vary in their level of difficulty and complexity require of the learner the same kinds of adaptations that will be expected of him in daily life. In this way, *transcendence* runs counter to the often-voiced concerns regarding "teaching to the test." Because the MLE strives above all to help the individual develop, it should be understood not as "training…oriented toward a specific content" but rather a series of procedures designed to establish the basis for higher cognitive functioning (p. 105). As illustrated above, the Graduated Prompt Approach to DA developed by Brown and her colleagues makes similar claims regarding the nature of development, and for this reason they have included transfer tasks as a necessary step in their assessment program.

Mediation of meaning, the third of the key MLE attributes described by Feuerstein, emphasizes the point made above with regard to culturally deprived children: the significance of objects and actions cannot be intuitively understood by the child but must be mediated to him so that relationships and connections become clear. Without understanding meaning, the child is left with an "episodic" grasp of reality and is unable to connect present events to those in his past and, conversely, cannot project into the future on the basis of the present or past. Each of his experiences is regarded by the child as standing alone, unconnected to the rest of his life. That is, in order for the learner to *transcend* a particular problem or set of circumstances he must develop what I will call a conceptual understanding of the principles involved in successfully completing the task. Lidz (1991, p. 77) reviews the available literature on the MLE and concludes that *mediation of meaning* concerns the mediator's attempts to get the child to notice certain features, to elaborate on their significance, and to engage in cause-and-effect and inferential thinking. She adds that "important cognitive outcomes of mediation of meaning include the ability to compare and to categorize, based on perceptions and explanations of how events and objects relate" (p. 76). Thus, while *intentionality* describes the approach taken by the mediator (e.g., structuring the experience, scheduling the stimulus, maintaining the child's focus, etc.) and *transcendence* refers to the goal of the MLE (i.e., the child's cognitive development), *mediation of meaning* can be understood as the glue that holds both of these together. That is, meaning explains both what

development looks like for Feuerstein (conceptual understanding of objects and activities) as well as what specifically needs to be mediated to the child (relationships and connections). Meaning is that which the mediator must intend to help the child develop and it is also what enables the child to move beyond the specific MLE to the larger world of social relations. For Feuerstein, this is the core of human learning. Indeed, as Bruner (1980) enthusiastically observed, "MLE is not only for the handicapped, it is for all of us since it's MLE which makes us human!" (cited in Feuerstein et al., 1988, p. 58).

3.3.4 Learning Potential Assessment Device

As should be clear from the above discussion of MLE attributes, the mediator is not tied to a script or set of rules but is required to respond according to the learner's needs throughout the DA procedure. The session itself is largely structured by the specific tasks or "tests" mediator and learner are cooperating to complete. These tests are known as the Learning Potential Assessment Device (LPAD).[5] The LPAD is a battery of 15 instruments that are dynamically administered to a learner during the MLE session. In this way, Feuerstein and his colleagues have managed to put their theoretical model of the MLE into a concrete form that can be readily accessed by researchers and practitioners; workshops are regularly offered around the world to provide training in the administration and evaluation of the LPAD.

Many of the LPAD instruments are well-known standardized tests Feuerstein has simply adopted while others were created by Feuerstein and his colleagues for use as part of their program. The complete LPAD battery consists of the following tests and tasks: Raven Colored Progressive Matrices and Standard Progressive Matrices, Set Variations B-8 to B-12, Set Variations I, Set Variations II, Complex Figure Drawing Test, Numerical Progressions, Diffuse Attention Test (Lahy), Organization of Dots, Positional Learning Test, Associative Recall (Functional Reduction and Part-Whole), Reversal Test, Plateaux Test, 16 Word Memory Test, Representational Stencil Design Test (RSDT), Tri-Modal Analogies, Organizer. Some or all of these tests are administered to the learner in a "flexible, individualized, and intensely interactive three-way (task-examinee-examiner) process" (Sternberg and Grigorenko, 2002, p. 55). Typically a learner is dynamically administered the LPAD without an initial static pretest. The reason for this, as Minick (1987, p. 117) explains, is that Feuerstein and his colleagues believe that for many learners such a pretest would provide yet another test-related experience of failure and frustration that would only serve to reinforce a negative attitude toward the test and toward learning, thereby jeopardizing the rest of the DA procedure. Of course, as Minick and others have pointed out, such a move prevents Feuerstein and his

[5] The LPAD, or Learning Potential Assessment Device, is referred to in some publications as the Learning Propensity Assessment Device. This difference in name does not, as far as I am aware, indicate any other difference in procedures, techniques, materials, or approach.

colleagues from being able to ascertain (i.e., quantify) the *amount* of improvement a learner has made as a result of the procedure and "they have resisted modifying their won assessment techniques in ways that would allow them to produce these kinds of quantitative measures" (ibid.). Following Feuerstein, Minick reasons that the kinds of changes to the assessment that would be required to produce traditional quantitative measures might very well undermine the whole system. According to Minick (1987, p.138), the considerable freedom the mediator enjoys in reacting to the learner brings this approach to DA very much in line with Vygotky's understanding of the ZPD as a means of "diagnosing development." Through successful mediation of the LPAD battery, the psychological processes underlying performance are brought to the surface. Indeed, Sternberg and Grigorenko (2002, p. 55) conclude that the significance of the LPAD is that "it provides an MLE by creating a ZPD." Working in cooperation with the child, offering guidance, and negotiating assistance, the mediator identifies cognitive functions that are in need of attention and begins working to develop them there in the testing situation. In Vygotsky's terms, the interaction between the mediator and the learner as they are collaborating to complete a task serves as an intermental model of the cognitive functions that the learner will eventually perform intramentally (Vygotsky, 1978). This effort to "modify the cognitive structure of the individual" (Feuerstein et al., 1988, p. 204) that is begun during administration of the LPAD is continued in the next phase of Feuerstein's approach to DA (discussed below).

Before moving on, a final word is in order regarding the LPAD. Rather than producing a "score" or "grade" to summarize the learner's performance, the results of the LPAD procedure are used to create a profile that: (a) assesses the individual's current cognitive functions such as perception, logical reasoning, attention, and general problem-solving abilities through analyzing what he is able to do without assistance or with minimal intervention from the mediator; (b) evaluates the learner's responsiveness to particular forms of mediation as determined by how much and what kinds of mediation are required for him to complete the assessment tasks; and, most importantly; (c) provides a "sample" of the individual's modifiability understood as how much the learner was able to improve with assistance, both during the dynamic administration of the tests and on follow-up posttests. This profile serves as the basis for an individualized cognitive education program designed to foster the development of the specific cognitive functions that the DA procedure revealed to be a source of difficulty for the individual. Feuerstein refers to this education plan as the Instrumental Enrichment (IE) program.

3.3.5 Instrumental Enrichment

Feuerstein et al., (1988) define IE as "a program composed of two major elements: a set of materials – the 'instruments' – and an elaborate teaching system based on mediated learning experience" (p. 209). Given that Feuerstein and his colleagues have primarily worked with children with various kinds of learning

disabilities, it is not surprising that the specific materials used in IE focus on the development of basic cognitive functions found to be deficient during the dynamic administration of the LPAD. Exercises such as Organization of Dots, Orientation in Space, Analytical Perception, Comparisons, and Categorization are the principle tasks mediator and learner collaborate to perform. A full listing of Feuerstein's IE instruments is provided in Fig. 3.3, along with a brief description of each.

In its current form, Feuerstein's IE program consists of around 300 h of exercises. Learners typically require about 2 years to complete the program, although there is a good deal of variance here given the range of ability levels and prior experiences that characterize Feuerstein's participants.

While Feuerstein's approach to DA is recognized as following one of the most individualized methodologies – and indeed as we have seen this is the crux of Feuerstein's aversion to psychometrically-oriented procedures – Feuerstein and his colleagues generally conduct the IE program in a classroom setting with between 10 and 30 students. They maintain that the diversity of needs, strengths, and ability levels actually produces an enriched learning environment where collaboration and multiple ways of understanding move to the fore (Feuerstein et al., 1988, p. 210). Although Feuerstein does offer IE in a one-on-one tutoring format, he warns that "the socializing and amplifying aspects of interactions in groups will be lacking," and suggests that the mediator take this into account as she plans her work with the learner (ibid.).

The main goal of IE, in keeping with SCM theory and the rest of Feuerstein's approach to education, is to help the child learn how to learn by fostering the development of the prerequisite cognitive functions needed for daily living as well as for the study of academic disciplines. Feuerstein contrasts IE with other instructional programs by explaining that in his approach:

> [T]he emphasis is on making the student able to learn how to acquire more information and to figure out what to do with it, to make him more efficient in his efforts to acquire new skills, and to make him more able to find adaptive ways to solve problems. (Feuerstein et al., 1988, p. 211)

To date, IE programs have been developed for and adapted to a wide range of learners, including those with Down syndrome, autism, cerebral palsy, attention deficit disorder, and hearing impairment. Given Feuerstein's interest in remediating deficient cognitive abilities and the needs of the populations his work has targeted, IE programs have not been created for instruction of specific content domains. In fact, Feuerstein has resisted tying IE any given discipline, insisting that individuals must first develop the ability to learn before attempting to study a content area. This is a significant departure from Vygotksy's thinking on the relationship between schooling and development, a point also made by Kozulin (2003), and one to which we will return in the next chapter. At this point we will turn to some of the empirical work that has been done in the Feuersteinian tradition. The DA procedures, the mediator–learner interactions, and the follow-up IE programs are all richly described by Karpov and Gindis (2000) and Peña and Gillam (2000). These studies will be considered in some detail in order to illustrate the insights into an individual's learning processes that can be gained by employing Feuerstein's model.

1. *Organization of dots*: the learner must identify shapes and patterns represented by clusters of dots. "Successful completion requires segregation and articulation of the field" (p. 213).
2. *Analytic perception*: these exercises focus on the relationship between a whole and its parts, the various ways a whole can be divided into parts, and the multiple possibilities that exist for recombining the parts to form new wholes. The goal is to overcome the learner's tendency for "blurred, sweeping, and global perception" that is "incomplete and imprecise" (p. 214).
3. *Instructions*: requires the learner to translate verbal instructions into a motor act and, conversely, to create verbal instructions to describe motor acts. These exercises are also helpful in emphasizing the need to breakdown directions and actions and to form plans before acting rather than respond impulsively.
4. *Orientation in space I*: designed to help learners "use concepts and a stable system of reference for describing spatial relationships" (p. 215), these exercises demonstrate that objects and events can be viewed from multiple positions and that the observer's vantage point affects his perception.
5. *Orientation in space II*: these exercises introduce learners to the systematic use of compass points and coordinates to describe and understand positions of objects.
6. *Categorizations*: learners group items into categories based on the presence or absence of characteristics that define the category and distinguish it from other categories; as the exercises become more complex, learners develop an understanding that items can be grouped according to a variety of criteria and that they can create the necessary relationships.
7. *Representational stencil design*: following specific instructions, learners use stencils to produce a "representational reconstruction of a design" (i.e., a transformation of the design rather than an exact copy of it).
8. *Family relations*: examines the ways in which each member of a family can be identified in differently depending upon her relationship to other members of the family, but that she retains her identity all the while.
9. *Numerical progressions*: designed especially to counter an episodic grasp of reality, these exercises require the learner to identify patterns in series of numbers in order to explain the presence of the numbers in the sequence and to add more numbers to it.
10. *Comparisons*: systematic comparisons of objects and events according to set criteria.
11. *Syllogisms*: identification of relationships among members in a set and drawing logical conclusions about the set.
12. *Temporal relations*: helps learners to "understand time as both an object and a dimension," and the "relativity of future, past, and present" and their relationship to verbal tenses.
13. *Transitive relations*: similar to syllogisms but focuses particularly on "greater than," "less than," and "equal to" relationships.
14. *Illustrations*: development of explanations to describe progressions of events and changes from picture to picture in a series of images.

Fig. 3.3 Instrumental enrichment program instruments (Feuerstein et al., 1988, pp. 213–227)

3.4 Applications of MLE in Educational Contexts

3.4.1 Analogical Reasoning Among Children with Learning Disabilities

Karpov and Gindis (2000) focused on one aspect of Feuerstein's LPAD, analogical reasoning, as they evaluated children with learning disabilities. The authors developed a number of mediational strategies as they attempted to first determine the children's current level of analogical reasoning and then to help them move beyond it. Largely following the work of Piaget, Karpov and Gindis identified three levels of reasoning ability: visual-motor (in which the participant relies on manipulating physical objects to complete the analogy), visual-imagery (the participant no longer needs to physically move the objects but still requires them to be present as at this stage he manipulates them in his mind), and the final, most advanced stage where the participant can complete the analogies without the use of any external mediational support.

Karpov and Gindis conducted a series of case studies with children with a variety of learning disabilities. One of the cases they report on concerns a seven-year-old child whose teachers described her as immature and as having limited cognitive and linguistic abilities and who had been identified as having attention-deficit-hyperactivity disorder (ADHD). Departing slightly from Feuerstein's procedure, the authors first conducted a static assessment to determine the child's independent level of functioning. According to their hierarchy of analogical reasoning, the child was unable to complete the tasks even at the visual-motor level (i.e., her performance was not improved even by the presence of objects she could move). When mediation began, the assessor had to offer constant reminders to maintain the child's focus and to direct her attention to various features of the objects that were important for the completion of the task. Through cooperation with the mediator, the child proved capable of analogical reasoning at the visual-motor level. During subsequent enrichment sessions, the mediator guided the child to abandon her reliance on physical manipulation of the objects and, with help, she succeeded in passing to the visual-imagery level of reasoning. She then went on to self-mediate through the use of private speech, no longer requiring assistance from the mediator. While the authors admit that the children they studied exhibited differing levels of ability when offered mediation (some jumped to the nearest level and a few were able to move from the most basic to the most advanced) and were also not uniform in their ability to maintain their level of reasoning when assistance was no longer provided, the significance of their work lies in the diagnosis of the children's functioning. In the case of the child just described, Karpov and Gindis concluded that she was not cognitively deficient but that she simply required instruction in how to overcome her ADHD through self-regulation (p. 151).

3.4.2 Language-impaired Learners and Learners with Language Differences

Just as Feuerstein has argued for the identification of culturally-deprived and culturally-different learners, Peña and Gillam (2000) present a series of case studies in which they sought to distinguish children with language impairment from those whose difficulties are the result of a language difference. The authors operationally defined language impairment as "unusual difficulties learning language" (p. 543); some of the language-impaired children Peña and Gillam identified struggled with learning in general while for others their problems seemed specific to language. Language difference, on the other hand, was used to refer to bilingual children and children who spoke a nonstandard dialect of the language of instruction. In a series of case studies, the authors assessed the vocabulary, narrative ability, and discourse performance of children as they engaged in a variety of tasks. Like Karpov and Gindis, the researchers broke with Feuerstein by following a pretest–mediation–posttest format but remained true to Feuerstein's preference for highly interactive forms of mediation. For instance, Peña and Gillam attempted to facilitate the children's use of single words to refer to objects, events, and concepts by relating the task to the children's personal experience ("Have you ever known someone who was _____?" and "What does it mean when X said Y?") and by encouraging them to make predictions about hypothetical situations ("What would happen if the puzzles were moved to the art area?") (p. 553).

In one study, the performance of a 4-year-old Spanish-English bilingual child on the *Expressive One-Word Picture Vocabulary Test-Revised (EOWPVT-R)* was below normal, but on the basis of her performance alone it was not possible to tell whether this was due to the linguistic and cultural bias of the test or to a genuine language impairment (p. 551). For most test items, she was either nonresponsive or simply replied, "I don't know." Through a DA procedure, Peña and Gillam were able not only to uncover the source of the child's problem but also to provide mediation to help her overcome the problem to some extent. While her performance on the *EOWPVT-R* did not improve following mediation, she did show improvement in her ability to self-regulate and plan, as well as in her motivation and attention to the task. Based on the DA, the researchers concluded that the child was suffering from a language impairment and not just a language difference problem. They also made a series of recommendations the teacher could implement in the classroom setting to help the child develop her vocabulary despite the impairment.

3.5 Conclusion

The widespread and growing interest in Dynamic Assessment among educational and psychological researchers is evidenced by a number of recent developments in these fields, including the following:

- A discussion of DA in the most recent edition of Cronbach's (1990) seminal text on psychological and educational measurement
- The appearance of DA studies authored by leading researchers in psychology and education, such as Robert Sternberg and his colleagues at Yale (e.g., Sternberg and Grigorenko, 2002)
- The publication of edited volumes, the contents of which attest to the great variety of current DA methods and the diverse contexts in which those methods are being employed (e.g., Lidz and Elliott, 2000)
- The creation of online resources that enable DA researchers the possibility to share their work and exchange ideas (e.g., www.dynamicassessment.com)

The review of DA in this chapter cannot pretend to be comprehensive nor does it represent all of the research traditions that have emerged in the DA literature. As the body of research grows, the picture becomes increasingly complex, with new models appearing that blend aspects of other traditions. Although Feuerstein's approach is clearly the most successful in realizing Vygotsky's vision of development-centered education, this does not mean that other DA models should be abandoned. Indeed, as we saw in the previous chapter, Vygotsky himself employed the ZPD in different ways depending upon the problems and questions he was facing.

In interactionist DA, the priority that trumps all others is learner development. The mediator's responsibility is to co-construct a ZPD with the learner in order to optimally promote the development of maturing functions, and this requires constantly fine-tuning mediation to be appropriate to the learner's needs. The highly flexible and dialogic nature of interactionist DA makes it an excellent choice for classrooms and for institutions that allow learner development to be documented in ways other than test scores. Contexts that require standardized assessments and the scores and percentile rankings they generate are not likely to welcome the open-ended approach to mediation advocated by interactionist DA. In such settings, interventionist approaches to DA are a viable option because they present a compromise by integrating mediation into a standardized procedure. They do not isolate individuals in the way that NDA does, but instead consider learner responsiveness to hints, prompts, feedback, or questions that may open a ZPD. To be sure, the mediation offered may not be sensitive to individuals' present level of development, but as proponents of interventionist DA would no doubt argue, providing some support is better than none at all.

In addition to these relatively general conclusions about possible DA applications, each of the five models discussed in this chapter offer theoretical constructs and research findings that are important to our understanding of DA and its potential contributions to the L2 field. Within interventionist DA, we have seen that Budoff, who was the first researcher in the West to apply the ZPD to testing, provides convincing evidence that providing even standardized mediation during test administration can distinguish individuals with learning disabilities from those whose poor school performance must be attributed to other factors, such as low socioeconomic status. In this way, Budoff's *Learning Potential Measure Approach* demonstrates DA's connection to issues of social justice – a dynamic procedure can

reveal abilities that remain hidden during NDA, and these insights can have profound consequences for how individuals are treated in a school system and the opportunities they are afforded. Guthke's *Lerntest Approach* is noteworthy because it moves DA beyond the realm of intelligence testing, suggesting that individuals have not a single ZPD for general cognitive development but rather ZPDs specific to various content domains, including language learning. Brown's *Graduated Prompt Approach* argues that true development resulting from collaboration in the ZPD involves much more than improved performance on a given test. The inclusion of transfer tasks makes it possible to distinguish learners who have effectively become better at completing the original assessment tasks from those who have developed and can recontextualize their knowledge and abilities as they encounter new problems. Carlson and Wiedl's *Testing-the-Limits Approach* highlighted the important differences in learner performance that result from simply requiring learners to verbalize the cognitive processes involved in task completion both during and after the assessment procedure, an observation that has substantial theoretical support in Gal'perin's (1989) views on internalization.

Reuven Feuerstein, the leading advocate of interactionist DA, has developed the most theoretically robust and complex model of DA to date, and so much of this chapter was devoted to understanding his *Mediated Learning Experience*. Feuerstein's approach is unique in that it the initial DA session serves to identify problems underlying learners' performance and the forms of mediation to which learner are most responsive. This information is then used to individualize instruction during an ongoing enrichment program that continues the ZPD collaborations begun during DA. Importantly, the same principles of mediated interaction guide the DA and enrichment sessions, and in this way the MLE approach fully integrates assessment and instruction as a single activity oriented toward learner development. Feuerstein's approach is obviously a radical departure from conventional approaches to assessment and instruction. It has consequently received even more criticism from mainstream educational researchers than other DA approaches, as we will see in the next chapter.

Chapter 4
Issues in Dynamic Assessment

Abstract This chapter addresses the major psychometric-based criticisms that have been leveled against DA. Much of the discussion centers on interactionist DA, both because its lack of standardization has made it a popular target of criticism and also because it is in line with Vygotsky's conceptualization of ZPD-oriented pedagogy and is therefore especially relevant to the classroom. It is argued that interactionist DA's suitability to classroom applications is a consequence of its ontological perspective on development, but this also means that constructs from non-dynamic assessment cannot be unproblematically applied to this model. This chapter also enters the debate among DA researchers over the quality of mediator–learner interactions. The position put forth here is that sensitivity to the ZPD rests on two interrelated factors, one pertaining to mediators' moves and the other to learners' contributions. Examples are provided of interactions that successfully promote development in the ZPD as well as those that do not.

Keywords Mediation, learner reciprocity, validity, generalizability

4.1 Introduction

As we saw in the preceding chapter, the term "Dynamic Assessment" refers not to a single methodology but rather to a range of approaches that incorporate mediation into the assessment procedure. Our review of the leading DA approaches supports Minick's (1987) observation that some, such as Feuerstein's MLE, have followed Vygotsky's vision of unifying instruction and assessment as a single activity organized around the ZPD, while other orientations to DA, including those of Budoff, Brown, and Guthke, have sacrificed full integration of assessment with instruction in favor of adhering more closely to traditional testing principles. As a result of this diversity, DA is characterized by a good deal of debate among proponents of the various approaches and criticism from those working in NDA.

Just as Luria's (1961) introduction of the ZPD to Western psychologists was met with concern because he had framed it in opposition to psychometrically driven

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approaches, DA proponents have often been severely critiqued by those in NDA for failing to demonstrate, in traditional terms, the reliability, generalizability, and validity of their procedures. These criticisms have provoked mixed responses. Feuerstein, for instance, has repeatedly argued against any standardization in MLE and has pointed to his many clinical successes to defend his approach. However, even these successes are not reported in the in-depth manner typical of case studies, and actual protocols from mediator–learner interactions are rarely given. In contrast, interventionist DA researchers, particularly those working in Guthke's *Lerntest* approach, have taken the psychometric properties of their procedures more seriously and have begun to integrate traditional testing constructs into their work (e.g., Guthke, 1992).

In this chapter, I will address the psychometric-based criticisms that have been leveled against DA. I will focus particularly on interactionist DA because it has received the lion's share of critical attention but also because it is in line with Vygotsky's conceptualization of ZPD-oriented pedagogy and is therefore especially relevant to our interest in classroom-based L2 DA. I will attempt to show that interactionist DA's suitability to classroom applications is a consequence of its ontological perspective on development, but this also means that constructs from NDA cannot be unproblematically applied to this model.

This chapter also enters the debate among DA researchers over the quality of mediator–learner interactions. DA research, even in the interactionist tradition, has not given adequate attention to the dynamics of collaboration in the ZPD. As mentioned, protocols of mediator–learner interactions are rare in the DA literature. The task of implementing DA in the classroom is a complex one, requiring teachers to be attuned to learners' current level of ability while simultaneously endeavoring to help them move to new levels of functioning. This chapter therefore includes examples of actual classroom interactions, and argues that some of them are successful at promoting development in the ZPD while others are not. As we will see, sensitivity to the ZPD rests on two interrelated factors. The first pertains to the mediation offered to learners and can be summarized by the basic tenet that *every move made by a mediator during DA must be focused on learner development*. This goal supercedes all others, including completion of the task, ensuring that the learner earn a good grade, or helping the learner to feel good about his performance. The second point proceeds naturally from the first: *to successfully co-construct a ZPD mediators must always be attentive to learners' reciprocating behaviors*. As I have argued elsewhere (Poehner, forthcoming), how learners respond to mediation, their requests for additional support or specific kinds of support, and their refusal to accept help all provide important insights into their actual level of development. Without adequate attention to learners' contributions to DA, one cannot hope to provide appropriate mediation. Ironically, this obvious point has generally been overlooked in much interactionist DA research, where the focus has tended to stay on the mediator's moves alone (Van der Aalsvoort and Lidz, 2002). This discussion will lay the foundation for a model of how DA can be implemented in the L2 classroom, which is the topic of the remainder of this book.

4.2 Psychometric Criticisms of DA

Ratner (1997, 2002, 2006) argues that Vygotskian theory differs both ontologically and epistemologically from theories of mind that are currently more prevalent in mainstream psychology. He points out that this rupture with the dominant modes of thought in psychology poses a serious challenge to Vygotskian researchers since the explanatory constructs and research methodologies in mainstream psychology should not be assumed to be appropriate or even relevant to SCT but must be carefully reevaluated (Ratner, 2006, pp. 18–20). In the present context, traditional concepts in educational and psychological measurement may not apply directly to DA because these constructs reflect theoretical assumptions about individuals not shared by SCT. The following sections consider these theoretical differences and their consequences for DA and NDA.

4.2.1 The Purpose of Assessing: Measurement or Interpretation?

Snow's (1990) review of Lidz's (1987) edited volume on DA makes several revealing comments about the place of DA research alongside more traditional ways of thinking about assessment. With regard to Minick's critical study of DA approaches and their interpretations and applications of Vygotsky's proposals (for discussion of this study see Chapter 2), Snow asserts that the theoretical links to Vygotsky "may only matter to purists" (p. 1135). By ignoring DA's theoretical origins, Snow mistakenly assume that dynamic and non-dynamic procedures share the same understanding of abilities. As explained in Chapter 1, modern assessment practices are founded on the model used in the natural and physical sciences, which privileges isolating discrete variables and measuring their amount or intensity. Psychological theories that adopt such an orientation treat cognitive abilities as stable attributes that individuals possess in discrete quantities. DA reverses this position, arguing that human mental abilities are defined by an emergent – and therefore modifiable – nature rather than by stability. Indeed, the very terms DA researchers use to distinguish their procedures from those in mainstream assessment –*dynamic* and *static*, respectively – are indicative of these different views of human abilities.

Critics of DA continue to overlook that DA and NDA posit divergent interpretations of the object of their procedures, and so their remarks, although often descriptively accurate, suggest problems where there are none. For example, Glutting and McDermott (1990, p. 300) correctly observe that if human cognitive abilities are dynamic in nature, as DA proponents contend, this would undermine the use of traditional psychometric methods of analysis and interpretation. However, they then proceed to attack Feuerstein on the grounds that his commitment to promoting learner development during assessment jeopardizes the procedure's *internal-consistency reliability* (ibid.)! For these authors, the possibility of an individual learning during an assessment procedure is a threat to reliability because the object of assessment

(i.e., the ability in question) is changing and therefore cannot be measured. Consider the example of an individual who does less well on earlier test items than on later ones. In a DA framework, this means the procedure is successful because the individual is learning, and an analysis of the mediation that brought about this change in performance is crucial for subsequent instruction. For Glutting and McDermott, however, such an individual poses a problem to traditional psychometric methods of performance analysis because the "amount" of ability that the individual "possesses" is not constant over time, with the result that the test must try to capture a moving target. Consequently, assumptions regarding the difficulty level and discriminating power of test items have to be called into question, since these are predicated upon a view of abilities as stable properties of individuals. Referred to as *instrument decay* in the testing literature, this phenomenon is said to undermine "the validity of performance interpretations" (Glutting and McDermott, 1990, p. 300).

Related to the problem of individuals developing during an assessment, Glutting and McDermott worry that interacting with individuals jeopardizes test–retest reliability because an individual may receive more or less (or different) help at two points in time (ibid.). From this perspective, standardizing administration procedures ensures that measurements of ability are not contaminated. In NDA, one cannot confidently draw conclusions about an individual's abilities without a highly reliable assessment procedure (i.e., one that repeatedly produces very similar results for the same individuals).

Büchel and Scharnhorst (1993) make a similar claim in their critical assessment of Feuerstein's MLE. While they admit that measurement may be "too ambitious a term in the context of psychological assessment," they go on to argue, "If we accept predictions made on the basis of unreliable observation, we cannot reasonably refuse predictions that are not based on observation at all" (p. 103). Thus, for Büchel and Scharnhorst, the fact that an individual might perform differently at two points in time makes the "observation" of that person's abilities unreliable and therefore of little or no value. Moreover, their use of the word observation is not accidental, since it denotes detachment and lack of participation, which as Sternberg and Grigorenko (2002, p. 29) point out, are the hallmark of traditional examiner–examinee interactions. Indeed, McNamara (2004) has likened testers' concern with obtaining a "pure" measure of learners' abilities to Labov's well-known Observer's Paradox: the object under study may change by virtue of our efforts to understand it (see Poehner, 2007). For Büchel and Scharnhorst, evaluating learners' abilities through DA, especially in the Feuersteinian tradition, is not likely because one cannot distinguish the mediator's contributions to the performance from the learner's (Büchel and Scharnhorst, 1993, p. 103).

Lantolf and Poehner (forthcoming) acknowledge that, from the perspective of NDA, mediator–learner collaborations introduce substantial test methods effect (i.e., the resulting performance is an artifact of the assessment procedure rather than a representation of true abilities). However, these authors continue that from a Vygotskian perspective, the dynamics of development can only be understood during the course of their transformation, and this occurs through "the productive

intrusion of other people and cultural tools in the [developmental] process" (Newman et al., 1989, p. 68). In DA, the unit of analysis for studying development should not be the individual acting alone, but the interpersonal functional system formed by people and cultural artifacts acting jointly to bring about development. Vygotsky argued that models that attempt to understand development separate from the environment misunderstand the nature of development:

> One of the major impediments to the theoretical and practical study of child development is the incorrect solution of the problem of the environment and its role in the dynamics of age, when the environment is considered as something outside with respect to the child, as a circumstance of development, as an aggregate of object conditions existing without reference to the child and affecting him by the very fact of their existence. The understanding of the environment that developed in biology as applied to evolution of animal species must not be transferred to the teaching on child development. (Vygotsky, 1998, p. 198)

The social environment does much more than simply provide the resources necessary to bring about change; instead, the individual and the environment exist dialectically, and the one cannot be understood apart from the other. From this perspective, understanding development means understanding the continual negotiation that occurs among individuals and artifacts in the environment as mediational means are transformed and internalized, reappearing on the intramental plane of cognition.

The widely divergent assumptions about human mental phenomena that inform DA and NDA make it difficult to apply traditional psychometric methods and concepts to DA. However, it should be clear that DA's incompatibility with more traditional frameworks does not invalidate it as an approach to assessment. Rather, their incommensurability simply points to the need for DA researchers to outline their own methods. In other words, Vygotsky's (1998) call to *understand* individuals rather than to *measure* them requires that new criteria be adopted to report and interpret outcomes and to evaluate the effectiveness of procedures because statistically-derived notions, such as reliability, are not appropriate to the goals of DA. This is because DA privileges development of the individual over the psychometric properties of the test and its administration. For example, Feuerstein responds to his critics by not only acknowledging that the MLE lacks internal-consistency and test–retest reliability but also insisting that in DA all possible steps must be taken "in order to *undo* the predictive value of the initial assessment by modifying functioning through the mediational process" (Feuerstein et al., 1988, p. 199). Feuerstein, like Vygotsky, is interested in understanding the processes that bring about development, and this necessarily entails learner development as part of the assessment. While reliability may be a desirable characteristic in NDA, it is a highly undesirable outcome of a DA procedure, which seeks to bring about change. A highly reliable assessment is problematic in DA because it suggests that the procedure failed to promote development. As Lidz (1991) cogently puts it, "the word 'dynamic' implies change and not stability. Items on traditional measures are *deliberately* selected to maximize stability, not necessarily to provide an accurate reflection of stability or change in the 'real' world" (p. 18, italics in original).

4.2.2 Generalizability

Lidz's remark about connecting assessment performance with the "real" world resonates with discussions of the generalizability of assessment outcomes. Generalizability concerns the degree to which one can make statements about individuals' performance in non-assessment contexts on the basis of their performance during assessment. I have argued that DA researchers, like their NDA counterparts, are also interested in learners' engagement in various kinds of tasks but that the issue takes on a fundamentally different signification (Poehner, 2007). In NDA, assessments are administered not merely to know how individuals perform a given set of tasks under specific circumstances but because the assessment tasks are believed to reveal certain abilities that assessors wish to measure. If one can be confident that the assessment adequately captures the abilities in question then it is possible to generalize how individuals possessing those abilities will perform under other circumstances. Context, in NDA, is conceived as an accumulation of variables, a background against which individuals perform. In this way, performance is isolated from contextual variables. Of course, as Van Lier (2004, p. 5) points out in a critique of traditional experimental research methods, treating context as a set of variables that can simply be added on to the object of study (or removed from it or controlled for in some other way) raises serious questions about what kinds of information count as context, how much it counts, and in what ways (see Ratner, 1997, for a similar argument).

Assessors typically address the issue of context by designing assessments that closely parallel the non-assessment contexts to which results will be generalized. Messick (1989) refers to this facet of generalizability as *task generalizability*, which in educational assessment usually implies that the tasks presented to students during assessments are very similar to those used for instructional purposes. Task-based pedagogies, for instance, develop assessment and instructional activities in tandem with the purpose of facilitating generalizations from the former to the latter. The reasoning behind this approach is that the further the assessment context deviates from the non-assessment context, the less confidence one can have in generalizations about individuals from the former to the latter. Of course, despite this general principle, the teaching–assessment dualism requires that restrictions be placed upon learners during assessment that are usually not a cause for concern during instruction – collaboration with peers, feedback from the teacher, and referencing textbooks, guides, or the internet are often permitted and even encouraged during instructional tasks but are forbidden if the task is intended as an assessment.

DA, of course, compels us to rethink the relationship between individuals and their environment. In DA, individuals' interactions with others and with cultural artifacts in their environment are understood not as a setting for development to occur but as the source of development. As I have argued (see Poehner, 2007), Feuerstein's model of transcendence is particularly salient in understanding how DA conceptualizes the relationship between performance and context. Remember

that in a DA-based program, all mediator–learner interactions simultaneously function as instruction and an assessment. Every DA sessions are coherent and systematic because they involve mediating learners' development in the ZPD, and continually engaging learners in the ZPD requires change; otherwise, learners would reach a point where they could complete tasks independently and, if not challenged, would cease developing. Transcendence therefore emphasizes the need for variable contexts rather than homogeneous ones. Learners are presented with increasingly complex problems, and careful attention is given to their performance, to the mediation they require, and to how they respond to this mediation. The issue is not to generalize to hypothetical contexts but to track learner development from one DA interaction to the next.

4.2.3 Validity

The issue of change in an individual's performance is central not only to questions of reliability and generalizability but also validity. To be sure, validity is a multifaceted construct, and has been widely interpreted by assessment researchers. Validity concerns the meaning that can be attributed to assessment performance, and in particular what this performance reveals about individuals' underlying knowledge or abilities. Over the years, assessment specialists have proposed a variety of methods for interpreting assessment performance. Cronbach (1990) follows a traditional, statistically based approach to validity. He explains:

> Psychometric testers place their trust in interpretations made by a rule derived statistically from previous groups … A psychometric tester accompanies every numerical score with a warning regarding the error of measurement and would like to attach an index of uncertainty to every prediction. (p. 36)

In this regard, *concurrent validity* and *predictive validity* are perhaps the most well-known methods of statistically establishing an assessment's legitimacy. Both involve correlating assessment results with those of some other measure, given either at the same time (concurrent) or later (predictive). The higher the correlation between the two assessments, the more valid the assessment is said to be.

Of course, establishing an assessment's validity on the basis of its correlation with another assessment that itself may or may not be valid poses certain logical difficulties. For example, Ratner (1997, p. 48) argues strongly against this sort of "mechanical correlation." He points out that a lack of correlation between two measures does not necessarily indicate that either of the measures is invalid, or does a strong correlation suggest that they are valid. In the case of the former, it may be that the same phenomenon expresses itself differently under various circumstances; in the event of high correlations, one may be simply observing similar behavior that has very different underlying explanations. Ratner concludes that establishing validity through correlations alone means that one can never truly know if results are valid (ibid.).

In the context of DA, traditional approaches to establishing validity are once again complicated by the assessment's goal of helping learner's to develop, which clearly runs counter to efforts to establish correlations. The question of predictive validity is especially interesting. Returning to Snow's (1990) criticisms of DA, he argues that the terms "static" and "dynamic" are a mere "propaganda device" (p. 1134) because all assessments are interested in making predictions or generalizations beyond the immediate assessment context. What Snow fails to appreciate is the qualitative difference in the *kind* of prediction that DA and NDA make. To recall the discussion from Chapter 1 of Valsiner's (2001) models of the future in psychological research, NDA assumes the future to be a smooth continuation of the present. This view of the future ignores the possibility of an intervention that might set development on a new course, which is the goal of DA.

At the heart of the matter is the notion of construct validity. DA, like all approaches to assessment, must carefully consider the construct (e.g., intelligence, scholastic aptitude, and language proficiency) targeted by the procedure. In other words, DA proponents are not exempt from the basic requirement to articulate a definition of the construct they are assessing and to argue the validity of using their procedures and instruments to assess it. Lantolf and Poehner (forthcoming) explain that DA practitioners must also address another construct, namely, development. In DA, the future is always emergent and can only be understood in the context of interaction between mediators and learners, whereby collaboration allows one to see where learners might go and how they can be helped along their way. Thus the validity of a DA procedure is best understood as the extent to which it promotes development. This point is in keeping with more recent interpretations of validity, such as Messick's (1988), which emphasizes above all the social consequences of assessment for individuals' lives. Messick compels us to consider the opportunities that are awarded or denied to learners as a result of their assessment performance. In language assessment, researchers have begun to systematically investigate these issues (e.g., Shohamy, 2001). DA represents one response to Messick's concern, as learner development becomes the immediate consequence, and indeed primary goal, of the procedure. As previously mentioned, Lantolf and Poehner (2004) describe DA as a bet that favors everyone because it does not accept their independent performance as the last word on their abilities but instead endeavors to help them move beyond this.

4.2.4 Development-referenced Assessment

The central role of development in DA is such a departure from NDA that it cannot be adequately conveyed by traditional terminology. For example, *criterion-referenced assessment* describes the success or failure of examinees to meet some predetermined level of knowledge or ability. *Norm-referenced assessment*, on the other hand, defines an individual's performance in relation to other examinees. In both cases, standardization and lack of interaction are assumed. DA can more

appropriately be thought of as *development-referenced* because, as explained above, its effectiveness depends upon the impact it has on learner development.

Interestingly, this notion is implicitly present in the criticisms of DA. For example, Feuerstein et al. (1988, p. 205) state that in DA, "very little attention is given to product or to the absolute magnitude of a result. More importance is attached to learning about the process that has brought about a particular product." In response, Büchel and Scharnhorst (1993, p. 100) retreat to the traditional, hard and fast bifurcation between teaching and assessment, suggesting that Feuerstein's approach to DA belongs to the former category and not the latter. The authors go on to cite the work of Burns (1984), who did a study comparing the effectiveness of NDA, Brown's Graduated Prompt Approach, and Feuerstein's MLE on bringing about development. Burns concluded that Feuerstein's flexible interaction with the participants was the most successful of the three, as evidenced by learners' posttest performances. This finding is taken by Büchel and Scharnhorst as evidence of the validity of Feuerstein's methodology as a *pedagogical* tool, but not as an *assessment* procedure. They argue that "if assessment is to be a scientific enterprise, i.e., if measures are to reflect more than arbitrary results, then we must accept a compromise between the educational and the diagnostic function [of a dynamic assessment]" (Büchel and Scharnhorst, 1993, p. 100). Even Snow (1990), amidst similar criticisms of DA for not making measurement its primary objective, admits that DA gives "richer descriptions of human cognitive performance and its responsiveness to intervention than do conventional assessments" (p. 1135). The issue is that these authors see DA's insights and potential for helping individuals develop as coming at too great a cost to the procedure's psychometric properties. Shifting our understanding of assessment from a criterion-referenced or norm-referenced perspective to a development-referenced perspective reverses these priorities so that development trumps psychometric concerns. This is especially true in interactionist DA, where the central concern is how mediation can best be used to help learners at any given moment. It is to this issue that we now turn.

4.3 Mediating Learner Development

In his criticism of research that employs the ZPD as an explanatory principle but that lacks a clear understanding of Vygotskian theory, Wertsch (1984, p. 8) offers an example of an adult helping two learners to complete a mathematics problem of dividing 124 by 23. One learner is a fifth-grade student and has already studied long division. Wertsch explains that in this case we might expect the adult to provide leading questions and hints in order to uncover the precise stage of the solution where the learner encounters difficulties and to help him overcome them. In other words, if the adult hopes to co-construct a ZPD with the learner, he must allow the learner maximum responsibility for solving the problem and be present to provide the minimal support that the learner needs, even if this means that they do not complete the task quickly or the learner fails to produce the correct answer. The other

learner in Wertsch's example is a first-grade student. In this case, the adult tells the child each number that needs to be written and where they should be located on the paper. Wertsch concludes that although both cases involve learners completing tasks under the guidance of an expert, only in the case of the fifth-grade student can we hope to understand and impact development. The difficulty of the division problem is so far beyond the younger child's level of ability that responsibility for completing the task lays exclusively with the adult, and so the collaboration is not within the child's ZPD.

These two adult–learner interactions illustrate the difference between promoting learner development and helping learners complete tasks. As teachers, we often feel pressure to cover a certain number of chapters or topics. While this orientation to teaching is understandable, especially given pressures imposed by legislation, standards, administrators, and school boards, it sometimes means that learner development is sacrificed in favor of other pedagogical goals. The examples below present teacher–student interactions taken from language classrooms. In some cases, teachers successfully provide mediation that leads development while in other cases teachers offer what might more appropriately be termed feedback designed to help learners complete tasks, earn a good grade, or feel good about their performance. None of the examples was framed as DA. As explained earlier, the research literature on DA typically does not provide protocols of mediator–learner interactions, a shortcoming that must not be repeated as DA makes its way into the L2 field. The protocols we will consider were originally discussed as formative assessment. It will be remembered from Chapter 1 that formative assessment (FA), in contrast to summative assessment, is intended to provide information about the effectiveness of teaching and learners' progress that can be used in making instructional decisions. As D'Anglejan et al. (1990) explain, FA "allows teachers to diagnose students' strengths and weaknesses in relation to specific curricular objectives and thus guides them in organizing and structuring instructional material" (p. 107). One type of FA, which Ellis (2003, p. 314) describes as *incidental*, occurs during the instructional conversations between teachers and students as they engage in their regular classroom activities, and in this way it is similar to interactionist DA. However, incidental FA and interactionist DA differ with regard to the content and purpose of teacher–student interactions. As we will see, these two approaches to assessment exemplify the crucial distinction between feedback and mediation.

4.3.1 Interactions During Classroom Assessment: Affective Support

In their analysis of L2 FA, Poehner and Lantolf (2005) conclude that FA tends to be "hit-and-miss" with regard to the promotion of learners' development. That is, the interactions between teachers and learners sometimes create opportunities for development to occur, but not always. Torrance and Pryor (1998, p. 91) conducted a series of classroom observations and similarly found that while teachers create

"good openings" for learners to develop, these are generally not fully explored. Instead, teachers tend to rely on intuition and their "commitment to child-centered 'gentleness,' " to guide their interactions with learners. Torrance and Pryor acknowledge that this type of behavior may still have an impact on learning, but note that the impact may be unintended and may not even be recognized by the teacher (ibid.). According to these authors, this is due to the teacher's lack of a theoretical understanding of development and of how one can effectively intervene in developmental processes. The result is that teachers often shift their attention to managing their interactions with learners instead of helping learners develop.

Torrance and Pryor (1998, pp. 89–90) provide the following as an illustration of a typical classroom FA interaction. This example is taken from a grade 2 classroom in the UK where the teacher (T) provides feedback to one of the students, Timmy (Tim), on a recent spelling test:

1. T: here we are – Timmy Patner
2. Tim: I knew I'd got nine or eight – or something like that =
3. T: = six
   [T looks directly at Timmy, who does not meet his gaze.]
4. T: -did you f\ - find it a bit of trouble then?
5. Tim: yeah
6. T: which bits did you find did you find the four extra words a bit difficult
7. did you?
   [Timmy nods.]
8. T: OK shall we look at those then – difficult – you nearly got right – there
9. should be an ell there [T writes in book.]
10. Tim: cut
11. T: yes you've got diffi<u>cult</u> with an ell it goes cult you see –
    [T looks up at Timmy again, who still does not look at him.]

Following Torrance and Pryor, it is worth pointing out the opportunity to explore the extent of Timmy's understanding that is lost here. Rather than beginning the interaction by working with Timmy to identify problematic words, the teacher tells Timmy which words – the last four – will be the topic of their discussion. The teacher then begins with the word *difficult*, but instead of including Timmy in the process of identifying and correcting the error, he simply produces the correct form while Timmy remains uninvolved, at least overtly. Importantly, the teacher makes no effort to ascertain whether Timmy recognizes the corrected spelling or understands why it is correct. Instead, the teacher moves on to the next word in the list:

12. T: OK – and s\ night was fine – f\ family you had one go and crossed it out
13. – tried again and gave up – yes
14. Tim: no it's just I didn't get enough time to do it =
    [As he speaks Timmy makes a circular motion with his right hand which he then withdraws again behind his back.]
15. T: = oh dear never mind yes – we were a bit rushed yesterday weren't we -

16. am/i/ly
    [T writes as he is saying this.]
17. Tim: yeah I was going to do that but I couldn't - > (**) <
    [Timmy points to where the T is writing as he says this. He then withdraws his hand again.]
18. T: > oh < were you – oh well never mind because –
    [T looks up at Timmy who this time meets his gaze.]
19. T: it was possibly my fault – for not giving you as much time as we had
20. last week – but – and surprise –
    [T writes in book again.]

In this instance, the teacher once again creates an opening for development to occur but does not follow through. When Timmy indicates in line 14 that his trouble with the word *family* was actually the result of insufficient time to complete the test, the teacher could have allowed him to reattempt the word. Timmy's degree of success would have indicated the true reason he had not spelled the word correctly, and his interactions with the teacher may have revealed the source of any trouble he was having. Unfortunately, these insights do not emerge from the exchange as the teacher chooses instead to address the time constraints of the test, accepting some of the responsibility for Timmy's performance. While such a move on the teacher's part may make Timmy feel better about his grade, it does not support his development. To be sure, providing affective support may have many positive effects for learners, but it does not take a leading role in development the way mediation does when it is attuned to learners' ZPD.

Let's consider the final two words that Timmy and his teacher discuss:

21. T: we need to just – that was one of the hardest wasn't it surprise – OK
22. and friends – a little aye – do you think – do you have a good practice of
23. these words – did you?
24. Tim: yes
25. T: good – all right so you tried your hardest – that's all I want you to do –
26. try your hard/

Once again, Timmy is not encouraged to participate in correcting the mistakes, and the teacher concludes the interaction with words of encouragement and affective support.

Torrance and Pryor observe that, despite the teacher's good intentions, there is no indication that Timmy has learned anything from this exchange. He may feel better about his performance because his teacher acknowledged the time constraints he was under during the assessment. However, the teacher has failed to gain any insights into the reasons behind Timmy's performance on the test, and so he is no better positioned to offer Timmy appropriate instruction in the future. As Torrance and Pryor suggest, the teacher fails to fully appreciate "the relationship of assessment to learning" (p. 91).

Rea-Dickins and Gardner (2000), arguing on the basis of their research into classroom-based assessment practices among ESL instructors in the UK, agree that

teachers generally do not have a strong theoretical understanding of the processes of development. They observe that this yields assessments whose procedures are unsystematic and whose results are questionable (p. 238). These authors carried out interviews with teachers and found that FA is generally recognized as a valuable part of instruction. Specifically, four ways in which FA impacts classroom instruction were identified in the teachers' responses: it helps teachers plan and manage their instruction; it provides evidence of student learning; it indicates the extent to which curricular objectives have been met; and it provides evidence for evaluating teacher effectiveness (pp. 229–230). Moreover, Rea-Dickins and Gardner argue against the traditional view that high-stakes testing refers to large-scale, externally imposed tests and that classroom assessments are relatively low-stakes. Instead, they note that high-stakes decisions are often predicated on learners' in-class performance (p. 237), and they express concern that the unsystematic nature of the assessments may lead to underestimates and overestimates of learners' abilities, with the result that learners do not receive appropriate instruction (p. 238).

4.3.2 Interactions During Classroom Assessment: Supporting Task Completion

Another consequence of teachers lacking a theoretical understanding of learner development is that their feedback during assessments may be focused on helping learners to "get through" the task at hand rather than to develop abilities that transcend any given task (Poehner and Lantolf, 2005, pp. 27–28). Poehner and Lantolf argue that these differing orientations to classroom interactions by distinguishing the concept of *scaffolding* from the ZPD. The term scaffolding analogizes the assistance given to learners struggling with difficult tasks to the structural support used to erect buildings (Wood et al., 1976). Although scaffolding was originally proposed as a way of actualizing learners' ZPDs, there has been ongoing debate in the research literature over the extent to which assisting learners as they complete tasks is synonymous with mediating their development. For example, some perceive a close connection whereby assisting learners as they complete tasks can promote their ZPD (e.g., Van Lier, 2004), while others, such as Chaiklin (2003, p. 59), recognize scaffolding as a useful teaching technique but suggest that the assistance offered to learners is not development-oriented. Valsiner and van der Veer (1993) argue that the scaffolding metaphor encompasses a wide range of assistance that does not appear to be rooted in a theory of mind, and as a result the teachers or tutors providing the scaffold do not intend to help learners develop new cognitive functions and pay little attention to abilities that are in the process of maturing; instead, learners are given any support that is needed to complete the current task (p. 50).

While this might seem to be a very fine theoretical distinction, it nevertheless has important practical implications for DA. Although interactionist DA requires mediators to constantly adapt to learners' changing needs, the purpose of mediation is not to help learners "get through" the assessment. Task completion may be a part of DA,

but the goal is to understand and promote learner development; task completion is simply a natural outcome of this focus. In DA, mediation is organized according to Vygotsky's argument that instruction must lead development. Traditional teaching agendas that include rigid goals and timelines (e.g., completing task X and moving to task Y before Friday) are anathema to development. As we saw above in Wertsch's math example, with enough assistance virtually any learner can complete any pedagogical task but this does not necessarily impact development. The crucial element of the ZPD is that mediation must be dialogically negotiated in order to take account of learners' emerging abilities and to permit responsibility for performance to remain in flux. In this way, learners are able to take on more and more responsibility – and with less support – as they become increasingly autonomous. Learners then should be prompted to transcend their abilities to other tasks (see Poehner, 2007).

A task-focused rather than development-focused approach to classroom assessment is illustrated in the research of Leung and Mohan (2004). These authors studied the interactions among students and teachers in two grade-four classrooms in the UK with large numbers of ESL students. The teachers engaged in informal group assessments of learners' reading comprehension and encouraged the groups to discuss their interpretations of the texts, to debate possible answers to the comprehension questions and tasks, and to reach a consensus. The teachers were particularly interested in helping the learners understand the need to explain the reasons for their answers rather than merely guessing. The following episode (adapted from Leung and Mohan, 2004, pp. 347–348) typifies the kinds of tasks used by the teachers and support provided to the learners. The authors assigned pseudonyms to all individuals involved.

One teacher, Robena, gave her students a humorous reading entitled, *A recipe for making parents shout*, which presents a set of directions similar to those found in culinary recipes except that this "recipe" involves children playing outdoors in the mud and then tracking as much dirt as possible into the house. Robena explained to her students that the steps could not be followed in their current order and that they needed to rearrange the recipe into the correct sequence. The students worked together in groups of five, and after they had agreed upon an order for the directions, Robena returned to survey their work. Upon noticing that the learners had mistakenly placed "list of ingredients" as the third step in the instructions, she intervenes to provide feedback. In the excerpt below, Robena (R) tries to help the students realize and correct their mistake. Two of the students, Hamza (H) and Zahir (Z), are particularly vocal in this exchange:

1. R: This is a list of the things that you need. So can that be number 3?
2. Students: No
3. R: Right, so perhaps we need to check it all again. So we've got 1 and 2
4. but as we've put that down as number 3 and [pointing] 4, 5, and 6, what
5. do you think we might have to do now? Mmm. We might have to change
6. everything, mightn't we, apart from maybe number 1 and 2. So we need
7. to rub that out [pointing to 3] and which one do you think came next? So
8. we know that's not number 3. So now we have to decide what No. 3.
9. really is. It might be number 4, it might be 5

10. H: that could be No. 3 [pointing to what is actually No. 7]
11. R: Can that come third?
12. Students: No
13. R: Why not? Why can't that be the third instruction? What are they doing
14. in the house?
15. Z: They're making mud on the floor.
16. R: So you know that can't be the third.

At this point the teacher directs the students to reread the passage and reconsider their choices, and she advises them to avoid guessing.

According to Leung and Mohan (2004, p. 354), the teacher scaffolded the learners through a reasoned process of judging an answer's merits. However, it should be noted that it is only at the end of the exchange that the teacher attempts to elicit the reasons behind learners' choices. She opens the exchange by calling the students' attention to the third step. She rewords step 3, defining "ingredients" for the students, and then asks whether this could be correct. When the students agree that it is not an appropriate choice, the teacher accepts their response but she neither pursues it nor does she make explicit why the answer was wrong. She then proceeds to tell the students that any of the remaining choices could come third in the sequence, but she does not attempt to help the learners think through the stages logically. Had this interaction been carried out dynamically, the teacher might have asked leading questions (perhaps drawing on their personal experiences) or collaborated with the students to determine the first and last stages in the sequence before connecting them with intervening steps. When another incorrect answer is suggested, the teacher does not accept it and asks the students why the answer is wrong. However, once again the explanation is not explicitly tied to any cause-and-effect analysis. The student essentially reads the direction in question and that is taken as an explanation. In DA, the student would have been prompted to provide reasons why making the floor dirty would logically come before or after other events.

Although the teacher's stated objective might be to help students learn to provide reasons for their interpretations of texts, the interaction reported by Leung and Mohan appears to be focused more on the here-and-now demands of the present task. To be sure, some of the learners may succeed in extrapolating concepts, principles, or strategies from this exchange that they can apply to future tasks. However, the teacher's moves call to mind our earlier discussion of support that, however well-intentioned, lacks any theoretical grounding. In this case, instruction aimed at promoting learners' ability to develop reasoned arguments would likely require explicit discussion of relevant concepts and principles as well as mediation that supports their internalization by learners.

4.3.3 Interactions During Classroom Assessment: Promoting Learner Development

In contrast to the above examples, Gibbons (2003) provides excerpts of classroom interactions and argues compellingly that the teacher successfully co-constructed a

ZPD with her learners. Gibbons' work is not discussed in terms of either formative or dynamic assessment, but rather as an instructional activity carried out within learners' ZPD. Because it involves a teacher mediating students' performance during a classroom activity, it fits well with the principles of both DA and incidental FA described above. Importantly, Gibbons' study also breaks with the tradition in ZPD research of considering only expert–novice dyads and explores the possibility of constructing a ZPD with a group of learners. Gibbons correctly points out that this idea was mentioned by Vygotsky himself (Vygotsky, 1998, p. 204), and operates in much the same way as one-on-one ZPD interactions, with a mediator constantly fine-tuning assistance to the responsiveness of learners. The difference is that in this case multiple learners are engaged with the mediator in collaboratively completing an activity.

Gibbons (2003) observed teachers' interactions with 8-year-old and 9-year-old students during group discussions in which the learners attempted to use scientific terminology to report the results of physics experiments. In the excerpts that follow (Gibbons, 2003, p. 264), the learners are discussing an experiment on magnetism. As the author points out, they tend to use everyday language, including terms such as "stick" "hold" and "push," but through the mediation provided by the teacher, "students' contributions to the discourse are progressively transformed across a mode continuum into the specialist discourse of the school curriculum" (p. 247).

1. Teacher: Tell us what happened
2. Beatrice: Em we put three magnets together/it still wouldn't hold the
3. gold nail.
4. Teacher: Can you explain that again?
5. Beatrice: We/we tried to put three magnets together.. to hold the gold
6. nail.. even though we had three magnets … it wouldn't stick.

The teacher begins the group discussion with a simple prompt that the students should describe what occurred during the experiment. Beatrice responds but does not make use of scientific terms, and so the teacher indicates that Beatrice's answer was not entirely appropriate by asking her to try again. This form of mediation is clearly quite implicit, as no feedback was given concerning what Beatrice should do to improve her response. As Gibbons points out, Beatrice's use of the expression "even though" suggests a causal relationship, and so it appears that Beatrice has some understanding of the principles at work but is struggling to use the appropriate scientific discourse to express herself.

The teacher then brings another student into the interaction, Michelle:

7. Teacher: Tell us what you found out.
8. Michelle: We found out that the south and the south don't like to stick
9. together.
10. Teacher: Now let's/let's start using our scientific language Michelle.
11. Michelle: The north and the south repelled each other and the south and
12. the south also.. repelled each other but when we put the/when we put the
13. two magnets in a different way they/they attracted each other.

The teacher begins once again with the same prompt, and Michelle's answer reveals an attempt to use terms appropriate to the context (e.g., the "south" end of a magnet) but like Beatrice, she also relies on everyday terms such as "stick." The teacher then moves to a more explicit prompt in line 10, identifying that the problem with Michelle's answer was that she had not couched her description in scientific terms. The learner responds successfully, using the terms *attract* and *repel* to describe the behavior of the magnets.

Lantolf and Poehner (2004, p. 65), in their analysis of this same episode, argue that the learners' *actual* level of development was rooted in a concrete understanding of the experiment, which they described using everyday language. A more generalized description that relied on the use of scientific terminology lay within their ZPD because they were able to perform appropriately when offered reminders from the teacher. That is, the students in this interaction were not able to use the terms independently, but they also did not need the teacher to provide the appropriate language. Poehner and Lantolf point out that from the perspective of DA, the students' ability in this case only manifested itself during the group's interaction with the teacher. Assessments of the students' knowledge without this kind of mediation would have likely underestimated their knowledge. In subsequent analyses of mediator–learner interactions, I have argued that careful attention must be given not only to mediating moves in DA but also to learners' reciprocating behaviors as these help to round out the picture of development (Poehner, forthcoming).

4.4 Learner Reciprocity

As mentioned in the above discussion of scaffolding and mediation, successful co-construction of a ZPD requires dialogic negotiation between mediator and learner. Mediators must fine-tune their interactions to remain sensitive to learners' needs, which will likely change, sometimes in unpredicted ways. To date, both interventionist and interactionist DA have given considerable attention to determining the types of mediation offered in their procedures but the learners' contributions have generally been assumed and not sufficiently theorized. I have argued that interventionist approaches position learners in a manner similar to many forms of NDA: performance is construed as a property of the learner and is interpreted in a binary fashion as either correct or incorrect (Poehner, forthcoming). The focus of interventionist DA is to determine the degree of explicitness of mediation required to prompt a correct response from the learner. Interactionist DA, as explained earlier, understands performance as an ongoing negotiation between mediator and learner in which both contribute differently and through which learners come to participate in more agentive ways (ibid.). Nevertheless, as Van der Aalsvoort and Lidz (2002, p. 115) observe, even interactionist approaches tend to overlook learners' contributions to DA, focusing instead on descriptions of mediating techniques and principles. These authors contend that:

> [T]he relationship between the teacher's, or trainer's, and the child's contributions to the interaction during assessment needs to become much more clear. Only then it is possible

> to keep track of the input and the results of this input as the expression of the learning potential assessment of the child. (Van der Aalsvoort and Lidz, 2002, pp. 115–116)

In their view, the primary concern of DA is *not* the quantification of assistance a learner requires but an in-depth analysis of the interaction between mediator and learner, and this includes careful documentation and interpretation of learners' contributions. Following Wertsch's (1984) portrayal of the ZPD as something not elicited by mediational means so much as created through bidirectional interaction between mediator and learner, Van der Aalsvoort and Lidz call for a reexamination of DA sessions that would highlight the *learner's* activity. Lidz (1991, p. 110) coined the term *learner reciprocity* to help conceptualize learners' "level of receptivity" to mediation. Originally she suggested reciprocity as a sort of learner counterpart to Feuerstein's *intentionality* attribute, since the latter addresses the mediator's goal of supporting development and the former concerns learners' openness to mediation or willingness to cooperate (ibid.). Van der Aalsvoort and Lidz (2002) subsequently devised a reciprocity rating scale (Fig. 4.1) based on a grounded analysis of DA protocols involving preschool aged children.

The reciprocity rating scale emphasizes that learners' responsiveness to mediation is not unidimensional and provides categories for interpreting learner behaviors during DA. Comments relating to these categories can be included in profiles that also document mediation moves, and in this way can provide a more balanced view DA interactions and what they reveal about learner development. For example, a DA report that a learner's *reaction to challenge* is to become distracted, silent, or angry might suggest that subsequent sessions could usefully involve a mediator helping the learner to reorient to the task when difficulties arise and to provide praise for success.

To date, Van der Aalsvoort and Lidz have not reported research on the usefulness of this scale for developing enrichment programs nor have they presented data to support or refine the categories themselves. Nevertheless, their proposal helps to redress the neglected area in DA research of learner contributions, and it also enhances the reporting of DA outcomes. In the Part II of this book I suggest that learner reciprocity is critical to enhancing our interpretations of L2 learners' contributions during DA and I expand the concept to include not only learners' responsiveness to mediation but also their requests for support and even their refusal of it.

- Responsiveness of interaction with mediator
- Self-regulation of attention and impulses
- Affective quality of interaction with mediator
- Communication related to shared activity
- Comprehension of activity demands
- Use of mediator as resource
- Reaction to challenge
- Modifiability in response to interaction

Fig. 4.1 Learner reciprocity rating scale (Van der Aalsvoort and Lidz, 2002, p. 122)

4.5 Conclusion

Sternberg (2000) attempted to mitigate criticisms of DA from those in NDA by suggesting that the two need not be mutually exclusive. He describes DA as a method that might be added to NDA in order to provide supplemental information about individuals' abilities (p. xv). Unfortunately, this characterization undermines DA's unique potential to help us understand and intervene in learner development. Regarding DA as an optional or extra technique to be employed in conjunction with existing pedagogies (if and when time and resources permit) runs counter to Vygotsky's vision of unifying assessment and instruction as a single development-oriented activity. Viewing DA as a supplement to NDA also fails to appreciate the theoretical perspectives on cognitive abilities and the processes of their development that underlie these two orientations to assessment. It is not surprising then that researchers in NDA react negatively to the reluctance of many DA practitioners to incorporate traditional psychometric principles and constructs into their procedures. NDA defines itself according to methods developed in the natural and physical sciences that privilege quantification and measurement. From this perspective, DA's insistence on the unstable nature of abilities and on the value of promoting development during the administration procedure negate it as a true assessment and relegate it to the domain of teaching.

In this chapter, I argued that the legitimacy of DA, especially the interactionist orientation that is more amenable to classroom practice, should not be judged according to psychometric standards because these are incommensurable with Vygotsky's theory of mind. Instead, DA procedures are legitimate to the extent that they achieve their primary goal of understanding and promoting learner development. This means that constructs from classic testing theory such as generalizability, reliability, and validity must be reconceptualized within a dynamic framework. I endeavored to outline the principle considerations of such an undertaking in this chapter, although more work is needed to further elaborate these ideas.

Another area of DA research that has not been sufficiently explicated is the nature of mediator–learner interactions. Even Feuerstein's publications on his MLE approach, while admittedly theoretically robust, fail to provide concrete examples of how mediation is negotiated as interactions unfold. This is a serious oversight that needs to be resolved if classroom teachers are to successfully implement DA. With that end in mind, I argued that successful co-construction of a ZPD depends upon the interrelated processes of systematically interpreting learners' reciprocating behaviors and altering mediation accordingly in order to support learner development. The data described in this chapter illustrate that much interactive classroom-based assessment does not optimally promote development but instead seeks to help learners complete tasks and to provide affective support. DA, particularly in the interactionist tradition, has the potential to render classroom assessment more systematic by offering teachers a theoretical understanding of development that can guide their collaborations with learners.

The results of DA procedures must report the mediating moves as well as the reciprocating behaviors that contribute to the overall performance. Importantly, this

information can highlight aspects of development that would likely remain hidden in NDA, as learners who are not yet ready to perform independently may exhibit changes in the forms of mediation they require or in how they respond to mediation. We will see examples of DA's potential to capture a highly nuanced and detailed view of abilities in the coming chapters when we consider protocols from L2 DA procedures.

Part II
Dynamic Assessment and Second Language Development

Abstract The second part of this book focuses on outlining a framework for implementing classroom-based L2 DA. The chapters that comprise this portion of the book begin by reviewing the few studies of L2 DA that have been carried out to date before moving on to propose a model for integrating L2 teaching and assessment according to DA principles. The advantages of L2 DA are then illustrated through close analysis of protocols of advanced learners of L2 French participating in DA. This is followed by recommendations for interpreting and reporting DA interactions.

Keywords L2 development, classroom assessment, L2 teaching, dialogic interaction

Up to this point, I have endeavored to establish the strengths of Dynamic Assessment as a monistic approach to assessment and instruction that provides insights into learners' abilities not generally afforded by other assessments while simultaneously helping learners move to higher levels of functioning. We have seen that interventionist DA, given its propensity toward standardization, tends to be used for more formal purposes such as exploring an individual's Zone of Proximal Development and making recommendations for placement and subsequent instruction. Interactionist DA in the Feuersteinian tradition realizes Vygotsky's vision of organizing educational activity around the ZPD by requiring mediators to cast aside traditional concerns of standardization in favor of optimally promoting development. Interactionist DA is therefore more relevant to our interest in the L2 classroom.

The remainder of this book focuses on outlining a framework for implementing classroom-based L2 DA. In the following chapters, I review the few studies of L2 DA that have been carried out to date and propose a model for integrating L2 teaching and assessment according to DA principles. I then attempt to illustrate the advantages of L2 DA through analysis of protocols of advanced learners of L2 French participating in DA interactions.

Chapter 5
Toward a Model of L2 Dynamic Assessment

Abstract This chapter reviews the L2 DA studies that have been conducted to date. The majority of these concern classroom assessment contexts. Three features critical to DA interactions and based on Feuerstein's MLE attributes are presented. These concern the quality of mediator–learner dialoguing, the coherence of DA sessions, and the object of L2 DA programs. The discussion then turns to a DA program for advanced learners of L2 French based on these principles. The protocols of L2 DA interactions considered in other parts of the book are taken from learners in this program, and so the present discussion also serves to contextualize those examples.

Keywords Mediation, reciprocity, L2 development, dialogue, zone of proximal development

5.1 Introduction

As explained in Chapter 1, DA is relatively unknown in Applied Linguistics. An early exploratory piece by Guthke et al. (1986) was discussed in Chapter 3 as an example of Guthke's Lerntest approach. This chapter considers the remaining L2 DA studies that have been conducted to date: one in the interventionist tradition (Kozulin and Garb, 2002) and one in the interactionist tradition (Antón, 2003) as well as three studies that at the time of writing are in various stages of implementation (Ableeva, in progress; Erben et al., forthcoming; Summers, in progress). Our review also includes two studies that I refer to as dynamic-like assessments (Schneider and Ganschow, 2000; Grigorenko et al., 2000). In addition to work that has been explicitly framed as L2 DA, the ZPD research of Aljaafreh and Lantolf (1994) is also described because it is an excellent illustration of an interactionist methodology as an ESL tutor cooperates with learners to co-construct ZPDs during one-on-one writing sessions. Importantly, the Aljaafreh and Lantolf study emphasizes, perhaps more than the L2 DA work to date, that the quality of mediation offered to learners is essential to promoting development in the ZPD.

M.E. Poehner, *Dynamic Assessment*.

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Although these studies represent an important start to understanding DA's relevance to the L2 field, it is equally evident that a coherent framework for implementing DA in the L2 classroom has yet to be articulated. This chapter outlines three features, based on Feuerstein's MLE attributes, that are crucial to DA interactions. In brief, these concern the quality of mediator–learner dialoguing, the coherence of DA sessions, and the object of L2 DA programs. The discussion then turns to a DA program for advanced learners of L2 French based on these principles. The protocols of L2 DA interactions considered in the following chapters are taken from learners in this program, and so the present discussion also serves to contextualize those examples. But before we can consider how DA principles might focus and redirect interactions in the L2 classroom it will be instructive to review how others have applied DA to problems of L2 development.

5.2 Dynamic-like Assessments in an L2 Context

5.2.1 Teaching Metalinguistic Awareness Strategies to L2 Learners with Dyslexia

Schneider and Ganschow (2000) suggest the potential usefulness of DA procedures in helping at-risk L2 learners, particularly those with problems arising from dyslexia. Building on their earlier research and that of their colleagues (e.g., Schneider, 1999; Sparks and Ganschow, 1993a, b), the authors suggest that awareness of metalinguistic strategies could be especially helpful for learners with dyslexia. Following the work of Baker and Brown (1984), they distinguish two types of metalinguistic awareness – *knowledge of* the linguistic rule system and knowledge of *strategies for applying* their metacognitive system. Importantly, however, DA is described by these authors neither as an integration of assessment with instruction nor even as an interactive type of assessment but, rather, as an ongoing "assessment cycle" in which teachers collect data on learners' metalinguistic awareness and then use this information to focus instruction on specific problem areas (p. 76). They suggest that through interaction in the classroom, L2 learners can be helped to develop the knowledge and skill necessary to improve their performance.

It is not clear from Schneider and Ganschow's description what makes their approach dynamic. To recall our discussion from the preceding chapter, the notion of an assessment cycle in which classroom assessments are used to inform teaching is generally referred to as formative assessment. In that chapter I argued that what distinguishes DA from formative assessment is sensitivity to the ZPD, which entails dialogic cooperation between mediator and learner. Indeed, it will be remembered that in Feuerstein's MLE approach the initial DA sessions and the subsequent Instrumental Enrichment program are united in that both involve mediating learners as they engage in tasks they could not complete on their own. Schneider and Ganschow make no mention of cooperation during the assessment phase of their

cycle. In fact, they provide no empirical evidence to validate their proposals or to illustrate their techniques. One is left to wonder how DA informs this work, as simply connecting the results of an assessment to instruction does not, in itself, qualify the approach as dynamic. Until the authors address this issue their proposals will be of limited use in designing a DA framework for the L2 classroom.

5.2.2 Testing for Foreign Language Learning Aptitude

Grigorenko et al. (2000) report on their use of a foreign language aptitude test based on a theory of learning they developed known as CANAL-F (Cognitive Ability for Novelty in Acquisition of Language (Foreign)). The essence of the theory is that learning, including foreign language learning, can be understood as the ability to cope with novelty and ambiguity (p. 392). The authors developed a formal testing instrument, the CANAL-FT, precisely to measure learners' ability to deal with novel problems. In particular, the test presents learners with information about and exemplars of an invented language, Urusulu, and then requires them to use this information to work through a series of tasks. Along the way, they are presented with additional information about Urusulu, and their success at interpreting this information and using it to make accurate predictions about the language is taken as an indication of their language learning ability. The CANAL-FT is comprised of nine subtests that target specific language areas such as semantics, syntax, and morphology.

According to Grigorenko, Sternberg and Ehrman, the CANAL-FT qualifies as an example of DA because it measures "the processes of knowledge acquisition at the time of the test" (p. 393). In other words, for these authors the test is dynamic because it measures language learning ability while examinees attempt to learn a language. However, at no point during the administration of the test is the examinee offered mediation, either in the form of hints, suggestions, prompts, or leading questions, or through interaction with another person. Thus, according to the description of DA given by two of these authors and cited in Chapter 1 (Sternberg and Grigorenko, 2002, p. vii), the work reported in this study does not adhere to DA principles because it does not include an intervention. One could argue that the procedure has a certain ecological validity as a language learning test since the examinees are in fact learning a language, but this does not render the procedure dynamic. Indeed, what the authors seem to be implying is that the CANAL-FT is in itself a dynamic instrument but, as described in Chapter 1, it is the procedure through which an assessment is administered that makes it dynamic or not. Any test instrument, including the CANAL-FT, could be administered in a dynamic manner – that is, with the provision of mediation – or in a non-dynamic manner. The description given by the authors indicates that the CANAL-FT, as currently administered, falls into the latter category. I will therefore not consider it further and will turn to procedures that meet the criterion of offering learners mediation in order to understand and promote development.

5.3 Interventionist L2 DA

Although Vygotsky scholar Alex Kozulin is currently head of research at Feuerstein's International Center for the Enhancement of Learning Potential (ICELP), he and his colleagues do not follow the interactionist approach to DA pioneered by Vygotsky and Feuerstein in their work with ESL students. Due to the large numbers of adult immigrants to Israel who are included their research, Kozulin and his colleagues have relied upon an interventionist format in which a mediation phase is sandwiched between a non-dynamic pretest and posttest. The one published study that has come out of this ongoing work (Kozulin and Garb, 2002) reports on the authors' use of a dynamic procedure targeting their participants' ESL reading comprehension skills. The pretest consisted of a short text in English followed by a set of comprehension questions. Following a non-dynamic administration of the test, classroom teachers who were trained as mediators reviewed the test with their students, "mediating for them the strategies required in each item, building together with the students process models for each item, and indicating how strategies can be transferred from one task to another" (p. 119). It should be noted that the goal of this mediation stage was not simply to improve learners' performance on the posttest (a near identical reading passage to the pretest) but, rather, to promote development. To that end, mediation focused on general comprehension strategies that could be used on various texts, regardless of vocabulary and grammatical structures. The mediation stage also included a series of four practice texts that learners read, attempting to apply the comprehension strategies in order to answer questions that accompanied each text.

Unfortunately, Kozulin and Garb's study, like much published DA work, fails to provide protocols or examples of DA interactions, and their description of the procedures lacks detail. One interesting aspect of their work is the manner in which they report the outcomes of the DA procedure. Rather than generating a qualitative report of each learner's performance before, during, and after the mediation stage, the authors endeavored to capture the learners' abilities with a single score. They devised a formula to calculate what they call a Learning Potential Score (LPS), somewhat reminiscent of Budoff's gain score (see discussion in Chapter 3). Kozulin and Garb define the LPS as the difference between the learner's pretest and posttest scores. Again paralleling Budoff's approach to DA, Kozulin and Garb used these scores to group students as low, intermediate, and high, and instructional recommendations were made for each group.

The issue of how the results of DA procedures should be reported is important for classroom practitioners. In Chapter 8 I outline an approach to profiling the development that emerges from DA interactions and how this can be systematically captured and tracked over time. The method I propose is qualitative in nature and takes account of various aspects of mediator–learner dialoguing. It is difficult to imagine how the complexities of DA sessions can be reduced to a single score such as Kozulin and Garb's LPS. Such an approach must certainly overlook important aspects of development. Indeed, as I will illustrate in the coming chapters learners' independent performance on a pretest or posttest may not change but this should not be taken to mean that development has not occurred. This important fact may

be lost in more quantitatively oriented approaches to DA but it is apparent in mediator–learner dialoguing.

5.4 Interactionist L2 DA

Antón (2003) reports on an interactionist DA procedure for placing learners in an advanced university level L2 Spanish program. Interestingly, Antón does not consider the pedagogical implications of DA in her work; she makes no mention of development occurring through the procedures but chooses instead to highlight DA's potential to provide a more complete and nuanced view of learners' abilities, which in turn led to more accurate placements in the Spanish L2 program. In this regard, Antón's work remains somewhat tangential to the classroom in that DA is not connected to instructional practices and remains a one off assessment. Nevertheless, her study argues strongly in favor of the validity of DA by demonstrating that the DA procedure was in fact superior to the NDA methodology by revealing important differences among students.

The interactive nature of Antón's approach is best illustrated in her assessment of the participants' oral proficiency. Students were shown a short film about a family traveling through Spain and then were asked to orally construct a narrative using the past tense to retell what happens in the film. They were evaluated on the basis of accuracy in their use of vocabulary as well as sentence-level grammar, with particular attention given to their control over the past tenses. The examiner was free to interrupt the students at various points in order to prompt them and to give them an opportunity to attempt the narration again. Students who responded to this form of prompting and improved their performance upon the retelling were taken to be at a higher level of proficiency than those students who were unable to improve. In Vygotsky's terms, the relevant abilities were in the process of maturing in those students who improved as a result of mediation; that is, the abilities were not yet fully matured but lay within their ZPD. Note that the following protocols have been translated into English, and Spanish is used only where absolutely necessary.

The first example occurred immediately after the student had completed the narration task. The examiner (E) was asking some questions about the student's (S) narration, and then stops to comment on the student's use of verb tense.

1. E: You started the story in the past and then, half way you switched
2. S: Yes, yes
3. E: To the present.
4. S: Yes, yes. I heard
5. E: Do you want to try again using the past? And you can ask me.
6. If there is a verb you do not remember it's OK.
7. S: Yes, yes, from the beginning?
8. E: Perhaps from the middle
9. S: In the past, yes, yes.
10. E: Did you realize that you made the switch?
11. S: Yes, yes, I heard.

Antón reports that the student was then able to renarrate the story from the middle, using the appropriate past tense forms with only occasional errors.

Following Vygotsky's description of the differences between two children's abilities that only become manifest through interaction, Antón rightly argues that had this learner been evaluated only on the basis of his solo performance, his ability to control the past tense would have been underestimated. It was only through interaction with the examiner – and this, it should be noted, was quite minimal – that the depth of the student's understanding became clear. While he had not fully mastered the past tense in Spanish, the DA procedure revealed that these functions were, as Vygotsky would say, within his ZPD.

For the purpose of comparison, an additional protocol from Antón's study is presented here. In this example, another student completing the same task exhibited the same problem maintaining the use of the past tense. In fact, this learner relied primarily on the present tense throughout. Once again, the examiner offered the learner a second chance after pointing out the mistake. This time, however, the student responds differently. He attempts to comply but exhibits a number of problems, including marking appropriate person features (using first person instead of third person forms). In fact, he is only able to use certain structures when the examiner presents him with a choice between two options.

12. S: She … arrived at the wall of the bus and … waited with her friends at
13. the wall [Here the student uses the Spanish word *pared* "wall" instead of
14. the appropriate *parada* "stop"]
15. E: Wall or stop?
    Pared o parada?
16. S: Stop
    Parada
17. E: Do you know what *pared* is?
18. S: wall.
19. E: It's a very similar word, isn't it?

In this case, the source of the problem was lexical in nature. This was important for the overall assessment of the learner's abilities since proficiency was determined on the basis of mastery of Spanish grammar and vocabulary. In the next example, they have returned to the narrative but the student's performance begins to break down as he struggles with the past tense.

20. S: *Jugué al tennis*
    I played tennis
21. E: *Jugué o jugó*
    I played or she played?
22. *S:* Jugó
    She played

A bit later in the session, a similar problem arose when the student was attempting to narrate the fact that one of the characters returned home to eat lunch.

23. E: ….*Muy bien. Y aquí dijo, que hizo?*
    Very good. And here you said, what did she do?
24. S: *Comí*
    I ate
25. E: *Comí o comió?*
    I ate or she ate?
26. S: *Comió*
    She ate
27. E: *Comió*
    She ate

Thus, while the first student in Antón's study was able to improve his performance after a simple one-time reminder, the second student was not. In fact, the second student was unable to produce the correct verb form without a very explicit form of assistance – the choice between two alternatives. While this form of mediation was enough for the learner to get past the problem at that particular moment, it did not carry over since a similar situation with the verb *comer* arose later in the same session. In Feuerstein's terms, the learner was not able to transcend to the new problem.

What is important to bear in mind is that if Antón had administered these assessments in a non-dynamic fashion, both learners would have likely received similar diagnoses. Specifically, both would have been evaluated as unable to consistently and correctly use the past tense during production of oral Spanish. However, the dynamic procedure revealed that the learners did in fact have different levels of control over these structures. Through DA, Antón was able to detect these different levels and consequently placed the students in different classes. I now consider three additional L2 DA studies that are currently underway and that make use of both interventionist and interactionist principles in the achievement of various goals.

5.5 Ongoing L2 DA Work

The studies I describe here have not been completed at the time of writing, and so they will not be discussed in the same detail as those above. The first of these is tied directly to the L2 classroom and involves the development of listening comprehension among learners of L2 French. Ableeva (in progress) is following an interactionist approach to collaborating individually with learners as they listen to a variety of authentic recordings, including radio broadcasts, commercials, and interviews. In a small-scale pilot study that preceded her current project, Ableeva (forthcoming) found that important differences among learners were often masked in non-dynamic procedures because for some learners the recordings were simply too difficult but for others their comprehension problems were the result of a failure to recognize a single lexical item or bit of cultural information. This means that the nature of the mediation she offered during DA ranged from explaining the meaning of a word to taking learners step by step through the entire listening activity.

An important feature of Ableeva's work is that, following the *Graduated Prompt* approach to DA (see discussion in Chapter 3), she has built in a series of near, far, and very far transfer tasks. In this way, Ableeva plans to further distinguish learners – and also have additional opportunities to promote their development – by collaborating with them as they engage in increasingly difficult listening comprehension tasks. As I argue later in this chapter, because development involves more than successfully completing a given task, recontextualizing one's abilities is crucial to DA's goal of understanding and promoting development. It is therefore a primary component of our framework for classroom-based L2 DA.

Erben et al. (forthcoming) are working to implement DA principles in a much broader context than the classroom. These authors are pursuing an initiative to reformulate an English to Speakers of Other Languages (ESOL) teacher certification exam as a dynamic procedure. Working within a college of education at a large research university in the southeastern USA, Erben and colleagues are functioning in a high stakes assessment context in which state mandates require the use of formal examinations to certify the competencies of university students graduating with an ESOL endorsement. To meet this requirement, the college of education requires all teacher trainees to earn passing scores on a standardized, multiple-choice ESOL exam. Erben and colleagues are endeavoring to introduce DA into specific ESOL courses, including those focusing on teaching methodologies, as well as introducing an interventionist DA form of the ESOL exam. Their goals, then, include devising an assessment procedure that is more sensitive to individuals' levels of knowledge and ability as well as familiarizing teacher trainees and faculty with DA in hopes that it may become a part of their instructional approach. It is easy to imagine the potential impact of this work as the trainees eventually take up teaching positions themselves and perhaps incorporate DA into their own classrooms.

One of these authors, Summers, is also preparing a doctoral dissertation that explores the possibility of administering DA through computers. Computer-based tests have been around for some time and clearly offer advantages over other assessment administration procedures. Summers (in progress) is following principles of interventionist DA to develop mediation to accompany specific tasks and items on a computer-based assessment of reading comprehension with learners of L2 French. Importantly, the mediating prompts will also be accessible to learners via computer. In this way, it will be possible to track learners' errors as well as the forms of mediation they used throughout the assessment. This information will be generated automatically by the computer. A number of studies in the general education literature have already been reported on computer-based applications of DA. I will discuss this work in more detail in Chapter 9, when I suggest additional areas of DA research that are relevant to the L2 domain. I now turn to the work of Aljaafreh and Lantolf (1994), which demonstrates principles of mediator–learner interactions that I will subsequently build on in outlining a framework for classroom-based L2 DA. At first glance, these interactions appear similar to those reported by Antón (2003) but as we will see Aljaafreh and Lantolf were not interested in identifying differences among learners as much as in helping them develop.

5.6 Co-constructing a ZPD with L2 Learners

Aljaafreh and Lantolf (1994) report on their collaboration with ESL learners struggling to control various grammatical features during the production of compositions for an intensive writing class. Following a clinical methodology, a mediator met individually with three students in the writing class and targeted their use of tense, modal verbs, prepositions, and articles. The sessions were presented to the participants as a tutoring opportunity in which the students would bring written work they had prepared for their class and, through interaction with the mediator, they would make revisions. The sessions were held on a weekly basis for a period of eight weeks.

As mentioned earlier, this study was not specifically framed as DA. However, the goal of this work was to promote language development, understood in a Vygotskian sense, and as such the mediator in this study endeavored to co-construct a ZPD with the participants, interacting with them in order to diagnose areas of difficulty and to help them gain control over the relevant structures. In fact, the authors describe this process as "one of continuous *assessment* of the novice's needs and abilities and the *tailoring* of help to those conditions" (Aljaafreh and Lantolf, 1994, p. 468, italics in original).

An important feature of this study was that the mediator did not approach the interactions with a prespecified set of hints and leading questions but instead allowed the mediation to emerge from his collaborations with the learners. In this way, the interactions involved a constant cycle of mediating moves on the part of the tutor, learner responses, and then appropriate adjustments to mediation (becoming either more or less explicit). Although Aljaafreh and Lantolf did not develop an inventory of responsiveness to characterize the learner's contributions to the interactions, their analysis of the sessions did lead to a regulatory scale that captures the relative degree of explicitness of mediation that the learners required. This is reproduced in Fig. 5.1.

The scale comprises 13 forms of mediation in all, arranged from most implicit to most explicit. At the implicit end of the scale the tutor prompts the learner to merely read a particular sentence containing an error without indicating whether the sentence contains errors. In some instances, this minimal level of prompting was enough for the learner to catch mistakes and attempt corrections. When this failed to produce any response from the learner, the tutor then might say something like "Is there anything wrong in this sentence?" If this also was insufficient to elicit an appropriate response from the learner, the tutor would then move to an even more explicit form of mediation and so on until the learner was able to locate the problem and make corrections. Eventually, if necessary, the tutor would explicitly correct the error himself, possibly accompanying the correction with a detailed explanation if he felt that the learner did not comprehend even when the solution was provided.

The following two protocols (reported by Aljaafreh and Lantolf, 1994, pp. 473–474) illustrate how these interactions were carried out. Note that in both cases the

0. Tutor asks the learner to read, find the errors, and correct them independently, prior to the tutorial.
1. Construction of a "collaborative frame" prompted by the presence of the tutor as a potential dialogic partner.
2. Prompted or focused reading of the sentence that contains the error by the learner or the tutor.
3. Tutor indicates that something may be wrong in a segment (e.g., sentence, clause, line)-"Is there anything wrong in this sentence?"
4. Tutor rejects unsuccessful attempts at recognizing the error.
5. Tutor narrows down the location of the error (e.g., tutor repeats or points to the specific segment which contains the error).
6. Tutor indicates the nature of the error, but does not identify the error (e.g., "There is something wrong with the tense marking here").
7. Tutor identifies the error ("You can't use an auxiliary here").
8. Tutor rejects learner's unsuccessful attempts at correcting error.
9. Tutor provides clues to help the learner arrive at the correct form (e.g., "It is not really past but some thing that is still going on").
10. Tutor provides the correct form.
11. Tutor provides some explanation for use of the correct form.
12. Tutor provides examples of the correct pattern when other forms of help fail to produce an appropriate responsive action.

Fig. 5.1 Regulatory scale – implicit (strategic) to explicit (Aljaafreh and Lantolf, 1994, p. 471)

learners were struggling with the same problem – the use of the article "the" with "United States" – but that the kind of mediation offered by the tutor (T) varied according to the learners' needs.

1. T: … There's also something wrong with the article here. Do you know
2. articles?
3. N: Articles, yes.
4. T: Yeah, so what's …
5. N: Eeh on my trip to …
6. T: What is the correct article to use here?
7. N: Isn't to is … no … eeh … article?
8. T: What is the article that we should …
9. N: It.
10. T: No. Article … You know the articles like the or a or an
11. N: The trip … my, is not my? No … the trip?
12. T: My … yeah it's okay, you say my trip.
13. N: My trip.
14. T: Okay.
15. N: To United States
16. T: Yeah, USA, what article we need to use with USA?

17. N: A, an, the
18. T: The, which one?
19. N: But the?
20. T: Okay, do we use the … preparing my trip to … the USA?
21. N: Aaah ah (utters something in Spanish) ah, okay when I use when I use
22. USA use with article
23. T: okay.

In contrast, the tutor's interactions with another learner in the following excerpt from a session are markedly different.

24. T: "In the same day I mailed them … to …" okay alright. What about also
25. …is there something else still in this sentence?
26. F: to the.
27. T: Hum?
28. F: the
29. T: okay, "to the" … yeah, "to the US."

These two protocols are an excellent example of the use of an interactionist DA procedure to differentiate between two learners who, on the surface, are experiencing the same problem but in fact are at different levels of development. In the case of the first student, his affirmation that he knows what articles are is not supported by his subsequent performance; indeed, he even has trouble locating the error. In the case of the second learner, only a leading question from the mediator is required for him to self-correct. Similar to Antón's (2003) work, then, these learners would likely have been misdiagnosed as having the same level of language ability when in reality they did not. Unlike Antón, however, Aljaafreh and Lantolf were also interested in supporting learner development.

As I suggested earlier in this chapter, an important feature of working in the ZPD is that it brings to light aspects of development that remain hidden if one considers only whether performance is correct or incorrect. In particular, a change in the type of mediation an individual requires may also indicate development. In the following example, Aljaafreh and Lantolf (1994, p. 479) present a learner who is struggling with verb tense during two sessions one week apart. In the first session, he is working with the mediator on marking tense in the modal phrase "I called other friends who can't went do the party."

30. T: Okay what else? … what about the verb and the tense? the verb and the
31. tense …
32. F: Could
33. T: Okay, here.
34. F: Past tense.
35. T: Alright, okay, "who" alright "could not." Alright? And? …
36. F: To.
37. T: Here [points to the verb phrase], what's the right form?
38. F: I … go.
39. T: Go. Okay, "could not go to" that's right "to the party …"

When the learner's performance during this session is compared with his responsiveness to mediation a week later when the same problem arises, a very different picture of his abilities emerges.

40. T: Is there anything wrong here in this sentence ? "I took only Ani because
41. I couldn't took both" … Do you see anything wrong? … Particularly here
42. "because I couldn't took both"
43. F: Or Maki?
44. T: What the verb verb … something wrong with the verb …
45. F: Ah, yes …
46. T: That you used. Okay, where? Do you see it?
47. F: [points to the verb]
48. T: Took? okay.
49. F: Take.
50. T: Alright, take.

In the latter session the learner is more responsive throughout. At first, of course, his responsiveness is somewhat misdirected as he interprets the tutor's question as referring to the meaning of the sentence, and so he responds accordingly by clarifying the other person included in "both." Then, when the mediator targets the verb with a more explicit question, the learner succeeds in providing the correct form. The learner's responsiveness clearly indicates his development between the two interactions. In the first session, the tutor had to point to the specific verb phrase in order to focus the learner's attention on the source of the problem; in the second session, it is the learner who points to the verb phrase in response to the tutor's questions. Thus, even though this student required support during both sessions, his level of understanding and control over the grammatical feature in question appears to have changed. Had Aljaafreh and Lantolf framed this activity as an assessment, the resultant picture of the learner's abilities would have certainly varied depending on whether the procedure was carried out dynamically or statically. That is, in a non-dynamic approach this change in the learner's level of ability would have likely gone undetected, and it would have been concluded in both sessions that he was not able to control English verb tense. It is only through cooperating with the individual that his ongoing, maturing understanding can be understood.

Before moving on, an interesting follow-up to this study was conducted by Nassaji and Swain (2000) that is relevant to the issue of tailoring mediation to an individual's needs. These authors sought to determine whether or not mediation sensitive to the learner's ZPD was necessary to improve performance or if any kind of mediation would be sufficient to help the learner move beyond what he could do independently; if both types of mediation are indeed helpful, then which one is best suited to promoting development? In a small-scale study, Nassaji and Swain paired a tutor with two ESL learners. With one of the learners, the mediation was dialogic as in the Aljaafreh and Lantolf (1994) approach. The tutor attempted to co-construct a ZPD with the learner by beginning the corrective interaction at the implicit end of the regulatory scale and moving systematically toward the more explicit end as necessary, depending on the learner's responsiveness to the mediation. With the

other learner, the tutor made no attempt to attune mediation to the ZPD but instead randomly selected implicit and explicit mediating moves from Aljaafreh and Lantolf's regulatory scale. In other words, the degree of explicitness or implicitness of the help was not determined by the learner's responsiveness. The specific grammatical feature under analysis in the study was use of articles in English (a, an, the, and 0). The results of the study showed that the learner receiving negotiated mediation in the ZPD had actually been less accurate than the non-ZPD student when independently producing the initial composition but nevertheless showed greater improvement as a result of the mediation, outperforming the non-ZPD student on the final composition task. In addition, the authors note that the ZPD learner "exhibited consistent growth over time, a pattern not observed in the non-ZPD student's performance" (Nassaji and Swain, 2000, p. 48).

As we saw in Chapter 2, Vygotsky's vision of a development-oriented pedagogy clearly requires dialogic negotiation between mediator and learner. Of the L2 DA studies conducted to date, the work that has perhaps come closest to organizing instruction around the ZPD is that of Aljaafreh and Lantolf (1994), although these authors did not fully consider the potential of tutor–learner interactions as assessment. Nevertheless, their study stands out because it highlights the importance of the quality of mediation in promoting L2 development, and it is therefore directly relevant to our purpose of outlining a theoretically-grounded approach to DA in the L2 classroom, which is the topic of the remainder of this chapter.

5.7 Principles of Classroom-based L2 DA

In Chapter 3 we saw that of the existing DA methodologies, the one that is most relevant to classroom interactions is Feuerstein's MLE approach. In what follows, I argue that three of the essential MLE attributes described by Feuerstein (Feuerstein et al., 1988) and discussed in Chapter 3 – intentionality and reciprocity, transcendence, and mediation of meaning – offer an excellent point of departure for classroom-based L2 DA. I suggest how these constructs may be applied to the particular problems of L2 development. I then describe a university-level DA program for advanced learners of L2 French organized according to these principles.

5.7.1 Quality of Mediator–Learner Dialoguing

Earlier it was explained that Feuerstein understands *intentionality* as the most fundamental MLE attribute because it emphasizes that mediators must approach their interactions with learners as an opportunity to intervene in and support development. This implies that mediators must have an understanding of the processes of development and how they can be optimally supported. For instance, relying on intuition alone might suggest that feedback should always be explicit in order to

maximize the potential for learner uptake. While this position may have "common sense" appeal, it is not sensitive to the dynamics of the ZPD, which compels us to offer mediation that is neither too implicit (in which case it would fail to be useful to learners) nor overly explicit as this would fail to reveal learners' precise level of ability. It is therefore incumbent upon mediators to decide, during the unfolding of their interaction with learners, the forms of mediation that simultaneously support learners while allowing them to remain as agentive as possible. As the work of both Antón (2003) and Aljaafreh and Lantolf (1994) show, mediation can sometimes be very implicit but under other circumstances must be quite explicit, and this is determined by where an individual is in the ZPD at a given moment. For this reason, *intending* to mediate development in the L2 classroom entails being open to providing any form of mediation learners require without concern for standardization of the procedure or adherence to a set repertoire of mediating techniques. Recall that the hierarchy of mediating moves developed by Aljaafreh and Lantolf emerged from their analysis of tutor–learner interactions and does not represent an exhaustive inventory. (Indeed, it is difficult to imagine what a "complete" list of mediation would look like!) While one may certainly enter an interaction with a plan that includes forms of mediation that might be offered, interaction in the ZPD requires that this plan be altered and perhaps even abandoned at any moment.

The emergent nature of mediation during DA is simultaneously a stimulus for and response to learners' contributions, or what Lidz (1991) refers to as *learner reciprocity*. In the preceding chapter we saw that Lidz (1991, p. 110) proposed *reciprocity* to draw researchers' attention to learners' "level of receptivity" to mediation, and her proposed reciprocity scale helps to round out the picture of DA interactions by complementing Feuerstein's notion of *intentionality*. In other words, while the former addresses the mediator's task of providing forms of support appropriate to learners' level of development, the latter underscores the active role played by learners themselves in the interaction. Elsewhere I argue that *reciprocity* takes us beyond the binary interpretation of learner responses (correct or incorrect) characteristic of NDA and broadens the scope of our analyses to include the ways in which learners negotiate mediation as they collaborate with a mediator to jointly brainstorm ideas, raise questions, discuss problems, propose alternatives, and evaluate solutions (Poehner, forthcoming). Indeed, this represents an important departure even from standardized approaches to DA in which learners are restricted to responding to only the mediation that is offered, and their responses are taken as an indication of whether more mediation is needed.

In that paper I further submit that successfully constructing a ZPD with learners involves moving beyond a model in which mediation is likened to a medication or treatment that is administered to individuals in measured dosages. I suggest that a more suitable metaphor is to see DA interactions as a dance: neither dancer's moves can be understood in isolation from their partner and the dance itself is only possible as a joint activity in which both contribute. Moreover, in this dance both may lead because as learners' abilities develop they take on increasing responsibility for performance. In fact, *reciprocity* itself may be regarded as mediation; that is, the learner's attempts to mediate the mediator by requesting specific forms of support,

questioning the mediation that is provided, and even refusing the mediator's offer to help. Taken together, *intentionality* and *reciprocity* represent a radically different framework for instruction and assessment in the L2 classroom in which abilities and the processes of their development are dynamic and so too must be the teacher–learner interactions that promote development.

5.7.2 Coherence of DA Interactions

While *intentionality* and *reciprocity* call our attention to the need to carefully calibrate the quality of classroom interactions according to learners' growing agency, the notion of *transcendence* adds a third element to this system – the task that is the focus of mediator–learner collaboration. In Chapter 2 we saw that Vygotsky's early ZPD work focused on the problem of IQ scores as predictors of school success. An important insight from this research is that some of the children in the study mastered all the tasks that comprised their grade-level curriculum and consequently could develop no further. As explained in that chapter, Vygotsky later described teaching and learning as leading development in a non-teleological manner, as there are always new problems to solve and new forms of mediation available. Cast in this light, Feuerstein's conceptualization of *transcendence* is essential to ZPD collaborations because it ensures that learners will continue to encounter problems and tasks that lie beyond their current abilities and therefore represent opportunities for development (see Poehner, 2007).

Without *transcendence* DA would not succeed in fully integrating assessment and instruction because *transcendence* demands full coherence from one interaction to the next. As I have argued throughout this book, every DA session is framed according to development in the ZPD, which means that assessment cannot be a one-time, stand-alone activity that is separate from instruction. Thus, in Feuerstein's model an initial DA serves as the basis for Instrumental Enrichment, and at various points during the IE program learners may repeat the initial DA in order that their development may be tracked over time. However, this does not mean that IE is aimed at instruction and DA at assessment. Interactions during any given session may be reported in a more or less formal manner, but all sessions involve learners and mediators collaboratively carrying out tasks of increasing difficulty.

5.7.3 Object of L2 DA Programs

The third attribute essential to DA in the Feuersteinian tradition is *mediation of meaning*, and this is especially relevant to DA in the L2 classroom because it concerns the object of mediator–learner interactions. To be sure, DA is first and foremost about development (see Lantolf and Poehner, forthcoming), but aside from this supra-construct dynamic procedures can target the development of basic

cognitive functions, as in Feuerstein's work, or abilities and knowledge tied to specific domains such as mathematics or language. Kozulin (1998, p. 88) refers to Feuerstein's IE as a *supplementary cognitive intervention program* because it supports the development of basic psychological functions and is not a part of any school curriculum. He contrasts IE with *cognitive infusion programs*, which seek to promote higher psychological functions through the study of specific content domains. He argues that in a pedagogy based on Vygotskian principles:

> There is no opposition between cognitive mechanisms and content knowledge for the simple reason that content appears here in a conceptual form that defines not only the content but also the type of reasoning involved. Because sociocultural theory emphasizes the historical character of human cognition, the conceptual structure of disciplinary knowledge appears here as a veritable form of human thinking. (Kozulin, 2003, p. 33)

Domains of knowledge, then, all have their own underlying logic, their own unique concepts that serve as "symbolic devices" for representing their object of study, for highlighting specific aspects of that object, and for organizing relationships among the various categories and principles that form the domain (Kozulin, 1998, p. 161).

This has led to a number of Vygotsky-inspired pedagogies intended to help learners internalize conceptual knowledge, most notably the approach known as *concept-based instruction (CBI)* associated with Vygotsky's student Piotr Gal'perin. In brief, CBI can be distinguished from other pedagogies by (a) an insistence that the object of study be presented to learners in its full conceptual form from the earliest stages of instruction; and (b) a prescription of stages through which learners must pass on their way toward full internalization of conceptual knowledge (for a review of pedagogical applications of Gal'perin's theories, see Negueruela, 2003). According to Gal'perin, the academic difficulties experienced by many students may be attributed to an inadequate orientation to the object of study. This, in Gal'perin's view, occurs because educational programs frequently breakdown sophisticated theoretical concepts into smaller, supposedly more manageable, bits of information that are presented to learners in a fixed sequence. Although such an approach is intended to facilitate learning, it often leaves learners to connect the dots on their own, which some are able to do more successfully than others. The result is that many learners are left with a partial or inaccurate understanding of important concepts in their domain of study. To redress these shortcomings, CBI takes as its starting point the central concept in a field (e.g., measurement in mathematics or communication in language), introduces it to learners in its entirety to maintain the integrity of the concept, and then proceeds to systematically present other concepts and their interrelationships. To aid learners' internalization of difficult concepts, CBI advocates providing material representations of abstract knowledge in the form of models, charts, tables, and diagrams. In addition, learners are encouraged to verbalize their developing understandings, which helps teachers to verify the quality of their understanding but also facilitates internalization.

Applications of CBI to L2 pedagogy have only recently begun to be explored (e.g., Negueruela, 2003; (see Lantolf and Thorne, 2006). Ferreira and Lantolf (forthcoming) describe an ESL writing program organized around the central concept of genre. These authors attempted to use genre as a means of sensitizing

students to the purposes and conventions associated with the various kinds of writing that constituted the academic ESL curriculum at a large North American university. Serrano-Lopez and Poehner (forthcoming) report the results of implementing a concept-based approach to teaching L2 Spanish locatives, a problematic feature of the language for English-speaking learners. In this study, the traditional rule-based approach to instruction was abandoned in favor of explaining the spatial relations underlying the Spanish prepositions. Importantly, these relations often conflict with English concepts of space, but learners came to develop new conceptual understandings in part through the use of clay models representing the relations encoded by the prepositions. The most extensive L2 CBI study to date is that of Negueruela (2003), which focused on teaching English-speaking learners about the concepts of tense, mood, and aspect in Spanish. Negueruela provides a detailed description of the materialization and verbalization stages of development and also documents learners' struggle with and resistance to the methods (see also Negueruela and Lantolf, in press).

In summary, successfully implementing DA in the L2 classroom requires a commitment to development-oriented collaboration with learners, and this involves carefully interpreting learners' moves in order to attune mediation to their needs. Without flexible, dialogic interaction one cannot hope to co-construct and maintain a ZPD with learners. Furthermore, the tasks and activities that are the focus of mediator–learner interactions must be organized and sequenced so as to continually challenge learners because this enables them, with support from the mediator, to stretch beyond their present abilities. Finally, at the curricular or programmatic level, L2 instruction should have as its goal learners' internalization of conceptual knowledge. In the next section I describe a L2 DA program built upon each of these principles.

5.8 DA of Oral Communication Among Advanced Learners of L2 French

5.8.1 Advanced Learners of L2 French

The L2 DA program described here was implemented at a large research university in the northeastern USA. Like many American universities, this institution sequences its undergraduate curriculum so that students specializing in a foreign language follow several courses focused on developing their proficiency before moving on to the study of literature. Students are encouraged to study abroad during their third year at the university and then return for advanced courses, which in some rare cases may include graduate-level literature courses. In the undergraduate French program at this university, fourth-year students enroll in an advanced oral communication course that functions as part of their capstone experience.

While DA procedures can certainly be adapted for use with language learners at all levels, a number of reasons motivated the decision to develop a DA program for

advanced levels of language study. Advanced language learners have the ability to produce longer stretches of discourse than beginning learners and are more likely to have select problems than beginners, whose limited knowledge of the language leads to numerous challenges. Of course, this does not mean that we should assume all advanced language learners to be homogeneous. Although this population is largely underrepresented in the SLA research literature, practical experience suggests that the different paths learners take to arrive at this level will yield a highly heterogeneous population in many regards. This diversity means that, relative to the course curriculum, individual learners will have different distances to traverse developmentally and will require different forms of mediation. In addition, this particular course's focus on advanced oral communication was also attractive in light of the current resurgence of interest in the assessment of oral proficiency (see Swain, 2001; McNamara, 2001). In fact, Johnson (2001) has even called for rethinking the ACTFL-OPI from a Vygotskian perspective, suggesting the potential relevance of concepts from SCT such as mediation and the ZPD.

The advanced L2 French oral communication course is organized according to "language functions" including persuasion, description, argumentation, informational, and creative or poetic function. In addition, students are required to consistently and appropriately use both a formal and an informal register of French during class activities (directions as to which register to use are given prior to specific activities). Throughout the semester, students give oral presentations, either individually or in groups, demonstrating the various language functions. Students are also routinely given opportunities to have small group discussions in class, during which they must use the relevant functions and registers. Although formal grammar instruction is not part of the course, students are often advised to purchase one of the many commercially produced reference guides. Instructors typically provide corrections of learners' grammatical mistakes but often choose not to devote class time to grammar teaching as learners at this level are expected to have a high degree of grammatical proficiency.

Owing to its experimental nature, the L2 DA program we will consider was designed to supplement rather than replace regular course instruction. Students were not required to participate in the program as part of the course but did so voluntarily outside of scheduled class time. In the following chapters we will consider the mediator's interactions with six participants in this program: Amanda, Donna, Elaine, Jess, Nancy, and Sara (all pseudonyms). All were native speakers of English who had studied French exclusively in formal settings; none had stayed in a French-speaking country for an extended period.

5.8.2 Organization of the L2 DA Program

The L2 DA program was structured to offer students individualized interactions with a mediator one to two times per week for a period of eight weeks. Upon first meeting with the mediator, learners were asked to compose two oral narratives in

French based upon brief video clips they watched. Narration activities were chosen as a means to understand learners' language abilities due to the wide range of linguistic structures required by such a task, including selective use of verb tenses (past tenses but also potentially the present and future tenses), aspect (perfective and imperfective), moods (indicative, conditional, and subjunctive), and methods of reporting speech (directly and indirectly), among others. In this way, learners showcased a variety of abilities, any of which could have required remediation.

The video clips upon which learners' narratives were based were from the film *Nine Months*, a comedy from the mid-1990s starring Hugh Grant, Julianne Moore, and Robin Williams that recounts the misadventures of a couple who unexpectedly find they are going to have a baby. This film was selected because it was hoped that its well-known comedians and light-hearted subject matter would help to ease some of the tension learners might feel about undergoing an assessment. The film was also in English, the native language of all the students, which helped to ensure that they had a solid understanding of the scenes they were asked to narrate. In addition, the film offered several clips that combined sequences of action and dialogue that provided ample material for the learners' narratives.

During their initial meeting, learners first composed a narrative without any interaction with the mediator. Observing their independent performance in this way enabled the mediator to gain a sense of each individual's current level of functioning, including potentially problematic areas worth investigating during DA. Immediately following completion of this task, learners watched another video clip and were again asked to construct a narrative but this time they did so through cooperation with the mediator. Following the DA principles outlined above, the interactions were highly dialogic, with the mediator free to pursue any problems that arose. The non-dynamic and dynamic narrations helped the mediator to identify each learner's ZPD according to the difficulties that arose as well as the quality of mediation and reciprocity that characterized the interaction.

The insights gained into learners' abilities during this initial session were used as the basis for subsequent meetings over a six-week period. Each interaction followed a similar organization in that the mediator and learner watched a new video clip and then collaboratively developed a narrative in French around what they had seen. For all learners, a recurring problem concerned the use of verbal tense and aspect in French (discussed below), and so this became a major focus of discussion. To be sure, other issues emerged during mediator–learner interactions that required attention, including lexical and phonological questions and problems pertaining to preposition usage and syntax. While each of these difficulties was addressed during the sessions in which they occurred, learners' struggles with verbal tense and aspect were ongoing and so a systematic, conceptual approach to remediation was followed. This is described in detail in the next section, but first I will outline the final stages of the DA program.

After six weeks of individualized enrichment sessions, the original dynamic and non-dynamic narration activities were repeated, allowing the mediator and learners to better understand any development that occurred during the program. Two transcendence tasks were then introduced to illuminate the degree to which learners

were able to recontextualize their abilities as they encountered new and more challenging problems. The first transcendence (TR) session paralleled tasks learners had previously completed in that they once again were asked to compose a narrative based on a video clip. However, the task differed in two very important ways. The video clip this time was taken from the film *The Pianist,* which is a different genre from *Nine Months*. It is a grim depiction of the true story of one man's survival during the Holocaust. As such, the emotional response and the attention this film demands are very different from the comedy used in the earlier DA sessions. Second, the specific clip learners viewed included only one line of dialogue. The scene involves a series of violent images and a sequence of events portraying a Jewish uprising against the German army and the latter's retaliation. The second transcendence activity (TR2) differed from the other tasks in an even more important way: the medium of the prompt itself. Instead of a video clip, learners' narrations were based upon their reading of an excerpt from Voltaire's *Candide*. In this instance, the prompt itself was in the same language as the learners' renarration (i.e., French), although given that the text was from the eighteenth century it diverged from contemporary French in several ways. For example, even the verbal forms used to encode aspect were a source of some difficulty because the literary *passé simple* was used by the author rather than the more common *passé composé*. TR2, then, challenged the learners to both read and comprehend in the L2 as well as to retell the story in their own words.

5.8.3 A Concept-based Instructional Approach to Verbal Aspect

As mentioned, it became apparent during the initial DA session that verbal tense and aspect was a source of difficulty for all learners. In French, past events, actions, and states of being may be described using either the *passé composé* or the *imparfait*. The *passé composé* emphasizes a given action as perfected, or completed, at some point before the present time while the *imparfait* makes no references to the perfection or completeness of the action. Thus, the *passé composé*, or present perfective, and the *imparfait*, or present imperfective, may both be used to describe any action. For instance, *John entered the room* and *John was entering the room* both refer to the same event but emphasize different aspects of it. In the first, it is clear that John has finished entering the room but in the second the action is referred to as ongoing and one expects that it is providing a background to another event. Both aspects convey different meanings, and the aspect a speaker chooses depends upon how he wishes to frame or situate past actions.

For English-speaking learners of French and other languages that similarly mark aspect, this distinction is notoriously difficult. Indeed, Swain (1985) reports that even advanced French immersion students after years of study continue to struggle with the *passé composé* and *imparfait* during narrative tasks. Harley (1986, p. 73) conducted a study in a Canadian French immersion program and found that students who had received between 1000 and 3500 h of instruction still experienced

great difficulty encoding verbal aspect. Thogmartin (1984) describes the distinction between the *passé composé* and the *imparfait* as "one of the most frustrating [topics] for the beginning student of French to master or for the pedagogue or grammarian to describe in a way that will be helpful to the student in conceptualizing the problem and correcting his own errors" (p. 344).

In part, the problem may stem from the fact that English often uses the same forms for both perfective and imperfective aspect. For instance, the statement *Paul was sick* can portray Paul's condition as either ongoing or completed, while in French this would be rendered as either *Paul était malade* or *Paul a été malade*. However, the manner in which students are instructed is a major reason this distinction remains cloudy for so many learners. In her review of techniques used for teaching the *passé composé* and the *imparfait* in high school and university French textbooks, Dansereau (1987) observes that explanations are not explicitly linked to the linguistic concepts of perfective and imperfective aspect (p. 33). Instead, she notes that aspect is "always mixed in with and lost among other explanations" which tend to be "vague, incomplete, contradictory, and generally poor" (ibid.). Blyth (1997, p. 54) points out that most French and Spanish textbooks confuse related but separate grammatical categories, mistakenly referring to the perfect and imperfect as temporal (i.e., tense) differences rather than aspectual. Citing Garrett (1986, p. 140), he charges that textbook presentations of aspect are "seriously misleading as explanations, sometimes actually wrong" (ibid.). He concludes that although aspect is a key grammatical concept, it is poorly understood by most learners of L2 French and Spanish because instructors themselves do not have a full conceptual grasp of it (p. 51).

If one follows Dansereau's (1987) argument, the problem can be traced to the failure of textbooks to present grammatical information in a coherent, conceptually organized, format. She suggests that aspect is not *explained* as much as it is *described* in relation to specific sentence-level examples (pp. 33–34). This allows for the identification of key words that students come to associate with the functions of these forms. In her view, "to fill a student's head with notions of 'completion,' 'duration,' 'number of times,' 'state,' 'action,' and so forth is to doom him to confusion, frustration, and incorrect usage" (p. 36). Instead of approaching the distinction between the *passé composé* and the *imparfait* as a series of descriptive rules-of-thumb to be memorized, Dansereau suggests focusing instruction on the linguistic concept of aspect, and this is precisely the aim of a CBI approach.

The French L2 DA program sought to improve learners' control over the *passé composé* and the *imparfait* by engaging them at the conceptual level and correcting any misunderstandings of verbal aspect. This approach was largely informed by Negueruela's (2003) Spanish L2 CBI program, which included verbal aspect among its topics. Drawing on Bolinger's (1991) formal accounts of aspect and Bull's (1965) pedagogical recommendations for Spanish L2 teachers, Negueruela developed explanations and supporting visual representations to help his students arrive at a conceptual understanding of the *preterito* and the *imperfecto* in Spanish. As French is also a Romance language, it uses aspect in ways that are very close to Spanish, and so Negueruela's explanations and examples were adaptable for use with L2 French learners.

In summary, the DA program implemented with advanced learners of L2 French supplemented the instruction they received in the oral communication course. At the same time, the presentation of the *passé composé* and the *imparfait* was qualitatively different from the treatment this distinction receives in most textbooks and language classes because it focused on the linguistic concept of aspect. As such, DA interactions endeavored to help learners develop a new theoretical understanding of this feature of French that they could use to regulate their functioning in the language. The DA program can thus be thought of in Kozulin's (2003) terms as *cognitive infusion*. In addition, careful attention was given to both the mediating moves and reciprocating behaviors that were made as the mediator and learner cooperatively completed the narration tasks. As learners began to function more autonomously mediation was recalibrated, and eventually the tasks became more demanding in order to provide opportunities for further development.

5.9 Conclusion

My goal in this chapter has been to review existing L2 DA studies as well as connect advances in DA theory and methods to the L2 classroom. Interactionist DA's preference for dialogue and cooperation over standardization makes it particularly well suited to the emergent demands of co-constructing a ZPD with classroom learners. In this regard, the work of Antón (2003) and Aljaafreh and Lantolf (1994) is especially relevant as these illustrated learners' differential responsivity to mediation and the signification of various forms of mediation.

These insights, along with key constructs from Feuerstein's MLE approach, are the basis for the principles I outlined for instituting a classroom-based L2 DA program. Specifically, I argued for the following: (a) mediators must be willing to provide any support necessary to foster learner development; (b) mediating moves must be sensitive to learners' changing needs as indicated by their implicit and explicit contributions to DA; (c) every interaction coheres around the ZPD, and this entails an awareness of the shifting dynamics of mediator–learner dialoguing but also an intentional effort to complexify tasks in order to continually challenge learners; (d) L2 development from this perspective involves the internalization of theoretical knowledge and so the approach taken to remediating underlying problems and confusions should be based on linguistic concepts. The L2 French DA program I described was informed by each of these principles. Of course, this program represents only one possible approach to employing DA to understand and promote L2 development. That said, the program did yield important insights and benefits to the learners and illustrated many of the advantages of L2 DA. These are explored in detail in the next two chapters.

Chapter 6
Understanding L2 Development Through Dynamic Assessment

Abstract This chapter provides evidence in support of the claim that DA enhances our understanding of individuals' abilities. Specifically, examples are offered of DA interactions that help learners to reconsider and think through problems and better enable the mediator to identify the quality of learners' understanding of relevant linguistic features. The implications for educators and assessors include the following: overestimates and underestimates of learners' abilities can be avoided; the extent of a learner's problem can be determined; the proper source of difficulty can be ascertained; and sudden changes in a learners' performance can be documented and explored.

Keywords Verbal aspect, underlying difficulties, diagnosis, mediation

6.1 Introduction

Sternberg (2000, p. xiii) attempted to capture the idea that dynamic procedures contribute to our understanding of individuals' abilities in ways that non-dynamic procedures do not by likening assessment results to forms of currency. He reasoned that if one were offered US$50 or 5000 Venezuelan bolivars, it would be best to receive both. Following this analogy, the results of non-dynamic procedures may reveal individuals' current capabilities but Dynamic Assessment provides this and much more: it also takes account of abilities that are still developing. Teachers, learners, administrators, and other assessment stakeholders are better off, Sternberg explains, with both sets of information. The goal of the present chapter is to demonstrate some of the insights into learner development that can be gained when Vygotsky's (1998) recommendations are taken seriously and we shift our focus from measuring outcomes of past learning to interpreting learners' emergent abilities and supporting their development.

Throughout this book I have argued that DA is a monistic approach to assessment and instruction based upon the fundamental principle of Vygotskian theory that understanding individuals' abilities necessitates intervention. It may therefore

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strike some readers as odd that the present chapter's title announces its emphasis on *understanding* development through DA while the following chapter is devoted to DA's potential to *promote* development. By organizing my arguments in this manner I intend not to reintroduce the assessment–instruction dualism but to illustrate that it no longer has relevance in DA. The examples of mediator–learner interactions described in this chapter and the next are taken from the same DA sessions. These collaborative dialogues may be analyzed as teaching episodes in which learners are offered support sensitive to their ZPD or as assessments that reveal the full range of learners' abilities. They are, of course, both. As we have seen, the decision to emphasize one perspective over another depends upon one's goals – does a DA session need to be used to generate reports for more traditional assessment purposes such as assigning grades, certifying competencies, or holding teachers and institutions accountable? If so, then it is reasonable to emphasize how a DA interaction sheds light on individuals' present and potential future capabilities. In Chapter 8 I will suggest how mediator–learner dialoguing may be characterized for assessment purposes in a principled and systematic manner. The goal of the present chapter is to provide evidence in support of the claim that DA enhances our understanding of individuals' abilities. Specifically, we will see examples of DA interactions that help learners to reconsider and think through problems and better enable the mediator to identify the quality of learners' understanding of relevant linguistic features. The implications for educators and assessors include the following: overestimates and underestimates of learners' abilities can be avoided; the extent of a learner's problem can be determined; the proper source of difficulty can be ascertained; and sudden changes in learners' performance can be documented and explored. Each of these is discussed in the following sections.

6.2 Revising Diagnoses of Learners' Abilities

Proponents of DA have long argued that it improves validity because it provides information about individuals' abilities that non-dynamic measures typically do not (Lidz and Elliott, 2000, p. 5). In particular, those working in the Feuersteinian tradition point out that the results of their procedures go far beyond simply noting whether individuals can correctly answer test questions or whether a given hint helps them solve an item; the interaction between mediators and learners brings to light the deficiencies or problems underlying poor performance. This kind of interaction is what Vygotsky had in mind when he insisted that assessments of ability must not merely provide a label but must explain the source of the problem and suggest how it can be overcome (for further discussion see Karpov and Gindis, 2000; Lidz and Gindis, 2003). In other words, assessments should be about *prognosis* rather than simply *diagnosis*. This more nuanced view of learners' abilities enables us to go beyond simply recognizing that learners are struggling and compels us to consider *how* individuals approach specific kinds of problems and *where* in the process of solving these problems difficulties arise. Furthermore, as we will see

in the following examples of DA with advanced learners of L2 French, sometimes even the diagnosis of an individual's abilities must be reconsidered in light of what is learned through cooperative dialoguing.

6.2.1 Mediation as a Means to Avoid Underestimating Learners' Abilities

Budoff (1968) expressly stated that his research endeavored to uncover hidden potential among underprivileged learners, whose abilities were typically underestimated by traditional tests. As explained in Chapter 3, Budoff's work built upon the earlier defectology research of Vygotsky and Luria, which stressed the crucial observation that failure to offer learners some form of external mediation does not allow us to fully capture their abilities (Luria, 1961). By observing independent performance only, one does not see those abilities that are in the process of forming and, perhaps more importantly, one may miss the opportunity to assist the development of those abilities.

During the initial DA sessions, it became clear that one of the learners, Amanda, used only the present tense and one of the past tense forms, the *passé composé*, avoiding the *imparfait* altogether. Recall that the *passé composé* or present perfective aspect (PP), emphasizes past actions, events, or states of being as completed at some point before the present time, and that the *imparfait*, or present imperfective aspect (PI), does not. As explained in Chapter 5, verbal aspect allows speakers to frame the same event in different ways depending upon their intentions, as in the example of *John entered the room* or *John was entering the room*. In her French narration, Amanda was only producing constructions of the type *John entered the room* and *John is entering the room*. Of course, sometimes the present tense can be used in narratives of past events, as when a narrator wishes to make evaluative comments. This occurs in line 2 below ("one has the idea that …"). However, Amanda also used the present when a past form was clearly required.

We pick up the exchange as the mediator (M) intervenes in Amanda's narration to ascertain the reason that she was not producing the PI and to reorient her to the task:

1. A: *les gens qui voudraient les enfants (…) ils ont besoin d'être préparé? pour*
   people who would like children (…) they need to be prepared? For
2. *leur responsabilité d'avoir les enfants et, on a l'idée que il n'a voulu pas* uh*
   their responsibility of having kids and, one has the idea that he didn't want uh
3. *n'a pas voulu la responsabilité pour les enfants maintenant mais pendant il*
   didn't want the responsibility for kids now but while he
4. M: yeah uh right he so remember you've got the two past tenses right? Okay
5. A: *pendant il a parlé Rebecca a dit qu'elle qu'elle a enceinté* et uh …*
   while he spoke Rebecca said that she that she has pregnant and uh …

The initial reminder that there are two ways of talking about the past in French is not sufficient to produce a change in Amanda's performance. She resumes her

narration in line 5 and continues to rely only on the present tense and the PP. After a moment, M intervenes once again:

6. M: I'm just going to kind of interrupt you there for a minute and ask you to go
7. back and renarrate it again and this time keeping in mind for example the
8. difference between the two major past tenses in French the *passé composé* and
9. the *imparfait*
10. A: *Rebecca et Samuel conduisaient à la maison de leur ami Sean et pendant le*
    Rebecca and Samuel were driving to their friend Sean's house and during
11. *voyage Samuel a dit que les gens qui qui avaient les enfants doit être prépare*
    the trip Samuel said that people who who had kids must be prepare
12. *préparé pour leur responsabilité*
    prepared for their responsibility

M's second intervention results in a successful change in the learner's performance. Note the extent of the mediation offered to Amanda here: M names the PP and the PI and calls the learner's attention to the fact that there are differences between the two; he does not explain these differences, nor does he provide illustrations or suggest that she reconsider her choice of aspect for specific verbs. Nevertheless, when asked to begin her narration again, Amanda shows that she is able to incorporate both the *imparfait* and the *passé composé* into her story and that she does have some control over them. Clearly, she continues to make various kinds of errors during her second attempt. The point to bear in mind that without dialogic interaction between mediator and learner it would have been difficult to discover that she did indeed have some control over verbal aspect. A non-dynamic procedure would have more than likely underestimated Amanda's level of development.

Furthermore, in some cases mediator–learner dialoguing indicated that two individuals whose performances bore striking phenotypic similarities were actually at different levels of development. One learner, Nancy, performed in ways very similar to Amanda during her initial DA. However, through interaction M determined that the reasons for her problematic performance were different.

6.2.2 Mediation Revealing the Extent of a Problem

During Nancy's non-dynamic narrative, M noted that she relied almost exclusively on the PP and the present tense. The very few instances of *imparfait* appeared with the verb *être* (to be). Immediately following this, during her first DA session, Nancy began to follow a similar approach, using the PP to construct her narrative around a series of completed events, thus avoiding important background information. Consider the following:

13. N: *elle a dit que elle va avoir une bébé. Et uh Sam non elle a réactê**
    she said that she is going to have a baby. And uh Sam no she reacted
14. M: uh *réagir*

15. N: *réagir il a réagi il a réagi avec (…) il perd il a perdu le contrôle de la*
    to react he reacted he reacted with (…) he loses he lost control of the
16. *voiture et ils ont avoir* une accident et elle a pensé que-*
    car and they have to have an accident and she thought that
17. M: *il a perdu contrôle de la voiture ils ont?*
    He lost control of the car and they have?
18. N: *ils ont ils ont av ils ont avoir* (laughs) *ils ont avoir* wait *ils ont avoir* uh
    they have they have they have to have (laughs) they have to have
19. (…)
20. M: something about accident?
21. N: what's the past tense the past participle of *avoir*?
22. M: *eu*
23. N: *eu ils ont eu ils ont eu un accident.*
    had they had they had an accident

In the above excerpt, Nancy is very clear that she wants to use the PP to state that the characters had an accident, and she receives mediation to help her do this. Later in the session, however, M questions Nancy about the conspicuous lack of PI constructions, and inquires about how she might find the PI useful when talking about the past:

24. M: I'm just going to interrupt you right there for one second because this is a
25. good transition point … Um I noticed a couple of things with the *passé*
26. *composé* right? Um just a cou I guess it's basically just a question like *ils sont*
27. *allés dans la voiture* in the very beginning *ils ont décidé de voir leur ami et*
    they went in the car they decided to see their friend and
28. *ils sont allés dans la voiture* and then later on uh *Samuel n'a pas pu croire*
    they went in the car Samuel couldn't believe
29. *qu'il y a des personnes*. So what about the *imparfait*? Are there instances
    that there are people
30. where you could use *imparfait* or what do you think?
31. N: um (…) yeah see I have a problem with the *imparfait* actually. I tend to
32. use it when I'm not supposed to and I forget to use it when I have to (laughs).
33. Um cause imperfect is when something is going on like so I guess I could
34. have said so if they're driving I guess I could say I could use the imperfect for
35. driving?
36. M: so then?
37. N: *ils étaient* uh no uh (?) *qu'il était* des personnes qu'il était des personnes*
    they were that he was some people that he was some people some
38. *personnes qui sont qui ont des enfants* cause it didn't just happen once there
    people who are who have kids
39. are people like that so I guess I could have used that. Would that make sense?
40. M: yeah that would be possible but then what about when they were in the
41. *voiture* they decided to go in the car right.
42. N: *ils sont allés*
    they went
43. M: Would that be an opportunity you would have to use the *passé composé* or

44. would *imparfait* also be possible?
45. N: I used *passé composé* when I said decided to go because they made a
46. decision once and it happened once
47. M: *ils ont décidé*
    they decided
48. N: *ils ont décidé d'aller* but then I don't know if I could use it probably I'm
    they decided to go
49. just not thinking right but I don't know if you could use it while they're in the
50. car. *Pendant* oh I could use *pendant. Pendant ils (…) allaient allaient*
    While while. While they were going were going
51. *allaient* is the imperfect of *aller* right?
52. M: yeah
53. N: yeah so. Yeah so *pendant qu'ils allaient à la maison de Sean Sam parle de*
    while they were going to Sean's house Sam speaks about
54. *les choses et les enfants* [I guess I could have said that too
    things and kids
55. M: okay okay]
56. N: okay yeah I forgot all about that one (laughs)

Through interaction with Nancy, M realized that the reason she had used the PI so little was not due to a conscious decision regarding how she wanted to narrate the events in the story. The problem, in fact, was that she was uncertain how to form the *imparfait* and she did not understand how to use it appropriately. Unlike Amanda, Nancy failed to use the PI not because she had forgotten about it but because she was unable to use it. For instance, in lines 37 and 38 Nancy produces *était* but then immediately switches to English to explain that the PI would be possible because people having children unprepared is not an isolated event. Her reasoning suggests that she may be combining two rules she had learned for using aspect: the *imparfait* is used for descriptions ("there are people like that") while the *passé composé* is used for actions that occurred once in the past rather than repeatedly ("it didn't just happen once"). Then, in line 50 Nancy remembers the expression *pendant* ("oh I could use pendant") and recalls that *pendant que* (while) is often linked to the imperfect (e.g., while I was sleeping, they went to the store). Through her verbalization Nancy finds a solution to the problem of how to express her idea (This phenomenon is discussed in detail below). Remembering the expression *pendant que*, Nancy seizes this as an opportunity to incorporate the *imparfait* into her narrative, although she has some doubt about how producing PI forms of the verb *aller* (to go).

Interestingly, Nancy's performance improved during the session. Although this kind of change does not often occur in NDA – and if it does, it is difficult to detect and interpret – it is the ideal outcome of a dynamic procedure. This point will be taken up in the next subsection, but first it is worth discussing the performance of another participant, Elaine. Elaine was unlike the other learners in that she eschewed the rule-based account of the difference between the PP and the IP, opting instead to follow her instincts as to "what sounded right." Unfortunately, Elaine's intuitions did not always result in the appropriate structure.

The following excerpt, taken from Elaine's first DA session, suggests that she is either unable or unwilling to offer an explanation regarding her choice of verbal aspect:

57. E: … *quand elle a dit qu'elle était enceinte il a tourné la voiture de la (?) il y a*
    when she said that she was pregnant he turned the car from the there is
58. *il y avait un accident et ils ont-*
    there was an accident and they
59. M: I have a question actually I just want to interrupt for a second. You said if
60. I remember correctly *il a tourné la voiture et* uh *il y avait un accident* so using
61. the um in the first part of the sentence the *passé composé* and then in the
62. second part the *imparfait*? Right?
63. E: *oui*
64. M: *il y avait un accident?*
    There was an accident
65. E: *oui*
66. M: just asking why the change in mid-sentence.
67. E: *j'sais pas* (laughs) uh
    I dunno
68. M: uh was that like a deliberate [thinking of how you wanted to
69. E: *non pas du tout* (shaking her head)
    no not at all
70. M: no?
71. E: no (shaking her head)
72. M: okay

Elaine's use of the PP with the verb *tourner* (to turn) is appropriate but her switch to the PI for the verb *avoir* (to have) is not. M interrupts, seeking confirmation that she has indeed chosen the PI and then repeats her utterance aloud. Elaine appears quite confident and gives no indication of reconsidering her choice. In response to M's request she produces a somewhat flippant comment in line 67, and even in lines 69 and 71 she does not enter into a discussion with M. A moment later M again seeks an explanation:

73. M: well if if this were like a test or something would you be more deliberate
74. would you have still gone with [*passé composé* and then *imparfait*? With
75. those two choices?
76. E: *premier c'est passé composé uh] (…) imparfait je pense*
    first it's PP uh imperfect I think
77. M: *imparfait*? With which verb?
78. E: *avec tout*
    with all of them
79. M: *touts les deux* okay so you would say then like um what was it?
    both of them
80. E: *Il avait il il tournait il tournait [il tournait la voiture*
    he had he he was turning he was turning he was turning the car
81. M: *il tournait] la voiture*

he was turning the car
82. E: *et il y avait un accident*
and there was an accident
83. M: *et pourquoi l'imparfait?*
And why the imperfect
84. E: *parce que c'est dans le passé mais ce n'est pas encore fini* (…) um I can't
because it's in the past but it isn't yet finished
85. think of the word
86. M: you can answer in English
87. E: *la scène* it's still going on
88. M: it's still going on? In the?
89. E: in the scene
90. M: okay
91. E: *mais peut-être je veux dire il a eu un accident parce que l'accident [c'est un*
but maybe I want to say he had an accident because the accident it's a
92. *action fini*
completed action
93. M: well that would] be in the *passé composé*
94. E: yeah but maybe I should have *peut-être je au je pouvais utiliser*
maybe I to I was able to use
95. M: *passé composé*? Because?
96. E: *parce que l'accident est déjà fini mais la scène [(…) va encore*
because the accident is already finished but the scene is going again

Interestingly, M has to "up the stakes" by asking Elaine to imagine that this assessment is a test with consequences before she acquiesces and engages in a dialogue. Initially Elaine decides to switch both verbs to the imperfect although the explanation she offers in lines 84–87 indicates that her understanding of aspect is vague. She then reverses her original decisions by putting the verb *tourner* in the *imparfait* and *avoir* in the *passé composé*. Her reason for changing *avoir* to the PP suggests that the PI would not be a possibility (i.e., that one could not talk about having an accident without referencing the event's completion).

Clearly Elaine has some awareness of aspect, but she does not appear to be guided by this knowledge; her reflection leads her to change both verbs with very little intervention from M. Nevertheless, her unreflective performance continues throughout the session:

97. M: *j'ai une question* so there you have *quand Christine était avec lui elle a*
I have a question when Christine was with him she
98. *voulu avoir des enfants-*
wanted to have kids
99. E: *elle voulait avoir*
she wanted to have
100. M: ah *elle voulait avoir*
she wanted to have
101. E: *elle voulait avoir des enfants [parce que c'est*

she wanted to have kids because it's
102. M: *donc imparfait imparfait imparfait parce que?* Could you explain—
so imperfect imperfect imperfect because?
103. E: (shakes her head)
104. M: —why *imparfait* seems right?
105. E: *je ne peux pas expliquer c'est la façon dans laquelle je parle*
I can't explain that's the way I speak

In this instance, Elaine refuses to explain her choice of the PI and does not want to engage in a discussion of its appropriateness.

During another interaction, M further persisted in asking for explanations of Elaine's aspectual choices. When pushed to explain herself, the learner attempted to connect her present performance to the rules of thumb she had learned from textbooks or past instructors. In other words, she resorted to her history as a learner in the formal context of French L2 university courses, where instruction is typically heavily rule-based. The result was that her explanations sometimes were not appropriate to the case at hand. For example, in the following excerpt M asks Elaine about her choice of aspect for the verb *arriver* (to arrive):

106. E: *Et finalement ils ont arrive* ils arrivaient chez Sean et il s'inquiète il*
and eventually they arrived they were arriving at Sean's et he worries he
107. *s'inquiètait*
was worrying
108. M: And the verb *arriver* there you said *ils sont arrivés* and then *arrivaient*.
109. Why the switch there?
110. E: *ils ont arrive**
they arrived
111. M: Were you switching on purpose?
112. E: I switched back to *ils ont arrive**
113 M: *ils ont arrivé*? so um *passé composé* right?
114. E: (nods)
115. M: Because uh?
116. E: they just arrived once. Uh-
117 M: if you used *imparfait* there what would that be? Could you use
118. *imparfait* there? For *ils arrivaient*?
119. E: (…) I'm thinking you can but I'm not sure when (…) it wouldn't make
120. sense
121. M: yeah? because?
122. E: they were arriving again and again and again.

Here Elaine's explanation is based on a rule she had learned linking single occurrences of an action to the PP and repeated occurrences to the PI. Such rules are often presented to learners to teach them to differentiate aspect but to Elaine it is not clear why the forms are associated with these functions. She does not have a full understanding of verbal aspect, and so when prompted to verbalize her reasoning she does the only thing she can – she attempts to explain her choice by connecting

it to a rule she had learned, although this leads her to the odd conclusion that using the *imparfait* would imply that the people arrived several times.

Later in that same session, Elaine is once again asked about her choice of aspect. At this point she becomes quite agitated, possibly because she is not accustomed to thinking in depth about the differences between the PP and the PI:

123. M: go ahead you can go back through it now real quick in French just the
124. part where you were setting it up?
125. E: *C'étaient dans la voiture rouge et ils ont ils ont conduit. Rebecca a*
    It was in the red car and they they drove
126. *je pense que j'ai dit elle a compté dans la calendrier*
    I think that I said she counted on the calendar
127. M: uh huh *elle a compté et ils ont conduit* so *passé composé* and then how she counted and they drove
128. come *passé composé* there cause [you used it again there
129. E: I don't know it just it just is is that a good explanation? Because it just
130. sometimes that's how you say it?
131. M: well I mean sure I guess we've always got that instinct there or
132. something like that but I was just wondering if there was something else
133. like a conscious decision going on or if that's just what came out
134. E: No it kind of just came out [I really didn't think about it
135. M: okay okay] …

In lines 125 and 126 Elaine is not completely certain which forms she had used and yet she insists that her choice of the PP is correct. She is resistant to the idea of giving careful thought to the selection of aspect. However, when urged to think through her decisions, her response is striking:

136. M: … and if you were to go back and do it now or to write it as you said?
137. E: I would probably use the imperfect
138. M: oh instead of *passé composé*?
139. E: (…) yeah. If I was writing it I might have just picked one of the two
140. and then stuck with it for the whole thing.
141. M: one of the two? Like either imperfect or *passé composé*?
142. E: yeah
143. M: and stuck with it for everything?
144. E: yeah for the most part of it.
145. M: hmm. How come? Cause that's kind of
146. E: Maybe that's the wrong thing but that's what I was always taught
147. M: That you should be consistent? If you're using imperfect you should
148. use it through if you're using *passé composé* you should use it through?
149. E: (nodding) yeah
150. M: rather than mixing them? Like using some *passé composé* and some
151. *imparfait*?
152. E: yeah unless like it's really indicated you should use one or the other.
153. M: and based on what we've done here and what you've done in your class

154. and stuff what would be like the major indications where it would be like
155. it's flagged oh it's definitely one versus the other in this case
156. E: *Passé composé* being the action it happened once either it happened
157. once or it happened completely and it's over a habitual action where it
158. keeps on going or it's still going uh it's still going on
159. M: okay okay alright so in this case would it be like she was counting and
160. was driving the car and stuff using the *passé composé* there because it was
161. um?
162. E: She did it and she was done. I don't know if that's right or not but
163. M: I'm just trying to delve down into where students are at because it's not
164. E: that's what they teach that's what they teach here for the most part for
165. the difference between those two.

It is difficult to imagine that a French instructor would advise students to select only one verb form to use rather than encouraging them to use both in their writing. The instruction was more likely concerned with verbal tense and the importance of carefully sequencing tenses. Moreover, Elaine herself did not follow an either-or approach to aspect but instead made use of both forms in her narratives. Her comments regarding the instances when one should clearly use a given form also provide support that her selection of aspect is based upon descriptive rules rather than a conceptual understanding. It is also noteworthy that Elaine repeats that she does not know if the rules are "right or not" and that she defends herself against possible criticism by stating that she is simply following "what they teach," that is, following the rules.

6.2.3 Mediation and Sensitivity to Change During the Assessment

Recall from our discussion above of Nancy's first DA session that her interactions with the mediator prompted her to begin considering how she might effectively use the PI in her narrative. During the remainder of that session, Nancy made several attempts to produce PI constructions, and these choices were generally appropriate and the forms correct. In the following excerpt, she is struggling to choose the most appropriate aspect to indicate that the character Sam was surprised by his wife's announcement that she was pregnant. Nancy clearly understands that her choice of aspect will have an effect on the meaning she is expressing, and she has some understanding that an action or state of being can be talked about in different ways, each highlighting a different aspect:

166. N: *…il était très surprise c'est une c'est une surprise pour Sam*
he was very surprised that it's it's a surprise for Sam
167. M: remember in the past
168. N: oh uh *c'était? une surprise pour Sam? C'était?* (…)
it was? A surprise for Sam? It was?
169. M: using *imparfait*?

170. N: *imparfait* um or *çaaaa* I guess *c'était* so *c'était-*
171. M: because? You're not certain?
172. N: well it's a surprise for the whole time for him or was it a surprise right
173. away (exasperated sigh)
174. M: I'm sorry was it a surprise right away or?
175. N: for him I'm trying to say it was a surprise for Sam
176. M: okay
177. N: and I'm trying to think if I want to put it in *passé composé* or imperfect
178. M: well if you put it in imperfect because that was your first instinct what
179. would that how would that come across what [would that mean?
180. N: because it was] a surprise for him it wasn't like surprise okay over it
181. was a surprise it lasted that was what caused them to get into an accident

Her comments suggest that she understands that being surprised could be used in the narrative in the PI, stressing how Samuel was feeling when they had the accident but that it could also be used in the PP, emphasizing that Samuel was surprised by the news he heard and then the accident took place.

At the end of this DA session, Nancy's comments to M offer further evidence that their interaction has led her to reconsider how she uses the *passé composé* and the *imparfait*. She is beginning to see how aspectual choices impact meaning:

182. M: *voilà voilà. Une chose* just one thing that I was thinking about was
that's it that's it. One thing
183. you said towards the end um *il pensait que les femmes sont comme des*
he was thinking that women are like
184. *mantis de prière* right? *Il pensait*. Why um imperfect there?
praying mantis He was thinking
185. N: Cause he was thinking. I thought maybe it's not something he thought
186. about once it's the way he thinks like in the in the I guess that's (laughs)
187. the way he feels about women
188. M: alright okay. And before that you had said *il n'était pas prêt d'avoir*
he wasn't ready to have
189. *des enfants*. Using *imparfait* again. Because?
kids
190. N: Because again he's right now and then he's not ready for it.
191. M: Okay but you also said *il n'a pas voulu avoir des enfants* [using *passé*
he didn't want to have kids
192. *composé*
193. N: I used both didn't I?
194. M: well no I'm just curious I'm just trying to figure out your process
195. N: because it's what I meant was whenever they had a conversation I guess
196. whenever Sean and Christine had their conversation he didn't want kids
197. right then and there (slapping one hand against the other). He doesn't.
198. want kids but when he was explaining what happened it's because he's not
199. ready for kids. That's why.
200. M: okay. So like that *imparfait* and then that one moment in time (…)

When M first questions her use of the *imparfait* with the verb *penser*, Nancy's answer is somewhat ambiguous. Her response that "it's the way he thinks" could imply that she is continuing to follow a rule, such as using the PI to give descriptions, without really understanding aspect. However, the distinction she makes between using *être* in the PI and *vouloir* in the PP does indicate a more principled understanding. In the case of *être* she explains that at the time of action "he's not ready for kids," and she contrasts this with *vouloir* when, during the conversation, "he didn't want kids right then and there." This is noteworthy because *vouloir* refers to a state of being and so is often used in PI constructions, although its use in the PP is certainly grammatical and would indicate some change in state, as Nancy suggests.

As explained in Chapter 4, any change to the ability being assessed is problematic in NDA, where assessment instruments and procedures are often designed with considerable thought given to the difficulty level and discriminatory power of tasks or items, and this is predicated on the assumption that what learners find difficult or easy at the outset of the assessment will be the same at its conclusion. DA, as we have seen, reverses this assumption because it understands abilities as dynamic and therefore amenable to change during the procedure. Thus, the shift we see in Nancy's performance during her initial DA session is not problematic, and in fact suggests that the interaction met with some success.

However, it would be a mistake to regard DA as a silver bullet that can miraculously enhance learners' abilities. Recall that in Vygotskian theory, development is a complex and often unpredictable process. In Nancy's case we see that even though she begins to rethink the *passé composé – imparfait* distinction, she also persists in using a more formulaic, rule-based approach to selecting verb forms. For instance, at one point in her interaction with M she expresses concern that using the same aspect twice in a sentence might violate a rule:

201. M: (…) uh huh yeah if you could just back up and try to redo it
202. N: okay it is a hard part
203. M: it is tough yeah but you're doing a good job
204. N: okay *pendant qu'ils attendaient le service pour réparer la voiture ils*
    while they were waiting the service for to repair the car they
205. *ont ils ont parlé oh uh ils ont parlé-*
    they spoke oh uh they spoke
206. M: were you thinking of something else?
207. N: I was going to think of imperfect but then no they can't be both
208. imperfect in a sentence can it?
209. M: two?
210. N: two imperfects
211. M: two imperfects in a sentence? I suppose it depends on what you mean
212. N: because [well I
213. M: it depends on what you're trying to say right?
214. N: yeah I'm going to go with *passé composé* so it's *pendant qu'ils*
    while they
215. *attendaient le service pour réparer la voiture ils ont parlé de la situation*
    were waiting for the service to repair the car they spoke about the situation

216. *des enfants*
concerning children

In lines 214–216 Nancy decides to use the PI in the clause beginning with *pendant que* (while) but to put the verb *parler* in the PP. There is no indication that this decision is based on the meaning Nancy wants to communicate. Rather, she appears to be following a formulaic construction typical of rule-based approaches to teaching aspect (while event A was taking place, event B occurred). It appears, then, that Nancy is simultaneously referencing a rule-governed system for thinking about the *passé compose – imparfait* distinction but also the start of a more conceptual understanding of aspect.

A related example involves another learner, Donna. At the end of the program, when she repeated the initial DA narration task, Donna experienced a similar struggle between a concept-based and a rule-based approach to aspect. For Donna, these two conflicting ways of understanding resulted in inconsistencies in her performance. This meant that her interactions with M became even more important as a means of understanding her choices and, consequently, her level of development. In the following excerpt, Donna has just finished her narrative and M questions her about her difficulty deciding which aspect to use with the verb *commencer* (to begin). Her response reveals how she was approaching her selection of aspect at that point:

217. D: yeah I can't make up my mind about that one he started to have he
218. started to imagine a situation and so it begins you taught me something I
219. hadn't realized before that you can use the *passé composé* to indicate a
220. specific beginning of something that happened in the past and not be really
221. clear about when it ends and so that rule that you taught me was making
222. me use *passé composé* but my gut was to use *imparfait* so that's why I
223. couldn't make up my mind
224. M: and why *imparfait*?
225. D: because it was something he imagined for a period of time but I think I
226. should override my instinct and in this case use *il a commencé* to indicate
227. that there was a definite place when he started to imagine uh the story that
228. his friend had told him

In the end, Donna chooses to use the PP, but it is interesting that she was torn between, on the one hand, the rule she had learned which states that the PI is used for events that occur "for a period of time," and on the other hand a new "rule" that emerged from her interactions with M, namely that the PP can be used to emphasize the beginning of an action. Donna's "gut" instinct was to follow the old rule even though she was not sure it was an appropriate expression of how she wished to talk about the film – "he started to imagine a situation." In effect, the rules Donna had learned were actually constraining her. That is, since she did not understand the underlying concept that allowed such descriptive "rules" to be generated in the first place, she did not realize that they were inappropriate in this context. In particular, without understanding that the PI is used to emphasize the ongoing, incomplete aspect of actions, the rule she had learned about the connection between this form

and events that endure "for a period of time" did not make sense to her. Thus, when trying to describe the act of imagining something, she erroneously considered the *imparfait*, reasoning that an act of imagining goes on "for a period of time."

Despite her confusion, the act of verbalizing her decision-making, even though M said very little, was beneficial for Donna. This mediational role of verbalization is discussed in detail below, but for now a single example of its benefits is relevant to Donna's case. Immediately following their discussion of the verb *commencer*, M moved on to the next verb, *avoir* (to have), in order to see how Donna would approach reconsidering her use of the PI:

229. M: and then you said that he had a nightmare *il avait un cauchemar* using
230. *imparfait*?
231. D: yeah
232. M: because?
233. D: well it should be he had a nightmare so that would be *passé composé*
234. but he was having a nightmare when he woke up so maybe I want to
235. indicate that it was something that had gone on for a while and then it
236. woke him up
237. M: oh okay
238. D: which would be *passé composé il avait un cauchemar et tout à coup il*
he was having a nightmare and all of a sudden he
239. *est réveillé*[*] *il s'est réveillé* and that would be *passé composé*
woke up he woke up

This time Donna switches to English in lines 233–236 and mediates herself by considering how the meaning of *avoir un cauchemar* (to have a nightmare) and its connection to *il s'est réveillé* (he woke up) change when *avoir* is switched from the PP to the PI. She considers the consequences of both aspects and decides that her original choice of the PI is most appropriate for how she wants to portray the events in the narrative. Thus, Donna has clearly benefited from the enrichment program by deepening her understanding of the relationship between tense and aspect. Nevertheless, this control and understanding is not complete as it now conflictingly coexists with her earlier, rule-based understanding of aspect, and the divergence between these two ways of perceiving temporal states and events sometimes results in errors. Before considering in more detail the importance of verbalization during DA I will discuss an additional advantage of providing mediation, namely that it brings to light problems that lie outside the focus of a given interaction.

6.2.4 Mediation and the Identification of Additional Problem Areas

Although Donna was not always certain how to use the *passé composé* and the *imparfait*, this did not account for all of her verb-related problems during DA.

In the following protocol, M targets Donna's choice of aspect, but through their interaction it becomes clear that another area was in need of attention – the formation of the PP of pronominal verbs:

240. D: *…et les quatres les deux femmes les deux hommes ils se présentaient*
and the four the two women the two men they were introducing themselves
241. *l'un à l'autre et um et—*
242. M: they do what? I'm sorry
243. D: *ils se présentaient l'un présentaient*? se présentaient?*
they were introducing themselves the one was introducing? Were introducing oneself?
244. M: right it's yeah well you've got *se présenter* to present each other—
245. D: *l'un l'autre**
the one the other
246. M:—right but um what about the verb tense there?
247. D: *a présenté ont présenté*
presented presented
248. M: and it's *se* as well right?
249. D: *sont présentés ils sont présentés*?*
presented they presented?
250. M: but you still have to keep the *se* in there remember? it's reflexive
251. right?
252. D: yeah *ils s-apostrophe-o-n-t*?
253. M: oh right I see what you're saying remember with reflexive verbs they
254. always use the other auxiliary right (…) because you're using a form of
255. *avoir*
to have
256. D: uh huh
257. M: *ont*
have
258. D: *ont*
have
259. M: but they're always going to be using the other one because it's
260. reflexive
261. D: oh oh it's *être*
to be
262. M: *être*
to be
263. D: so it's *ils se sont présentés*
they introduced themselves
264. M: *voilà ils se sont présentés*
that's it they introduced themselves

M begins by targeting Donna's choice of the PI for the verb *se présenter* but her responsiveness, particularly her difficulty putting the verb in the *passé composé* beginning in line 249, leads M to shift his attention to the use of pronominal verbs.

The rest of the exchange deals with placement of the pronoun *se* and selection of the appropriate auxiliary. This was not the intended focus of the intervention, and in a non-dynamic procedure the problem may have never been identified; instead, the use of *se présenter* would have simply been marked as an appropriate or inappropriate use of aspect. In fact, even in an interventionist approach to DA, with its comparatively rigid framework for mediation, a mediator may have identified the actual problem but would not have been free to interact with the learner to resolve the difficulty. Only in an approach that allows for mediation to be negotiated and for the focus of the assessment to be always emergent can a mediator be fully committed to promoting development in the ZPD.

Our analysis so far has examined the valuable insights into learners' abilities that can be gained by offering mediation when they encounter difficulties. A form of mediation first proposed by Carlson and Weidl (1992) in their *Testing-the-Limits* approach to DA entails asking learners to explain their thinking after or even during the procedure (see discussion in Chapter 3). As we will see in the next section, this proved an extremely useful technique for bringing to light the extent of learners' understanding and identifying sources of poor performance. At the same time, the act of verbalizing their reasoning helped learners to step back from the task at hand and reflect on their performance, which in some cases further promoted development.

6.3 Learner Verbalization

In the preceding examples, M has often assumed a very active role in the collaborations, offering hints and suggestions, pointing out errors, and providing information. In the exchanges discussed below, M's participation is much less, and is often limited to clarification requests and confirmation or acceptance of learner responses. His primary contribution is to ask learners to explain, in English, the ideas they were attempting to express in French and why they chose certain structures and lexical items. The resulting verbalizations reveal much about learners' level of understanding and where confusions or problems occur, and in some cases this reflection helps learners to overcome the difficulties.

6.3.1 Verbalization and Mediator Presence

At one point during her repetition of the original DA at the end of the program, Donna momentarily paused in her narration and focused explicitly on her selection of aspect for the expression *être en colère* (to be angry). She initially used the verb *devenir* (to become) in the PI, but after deciding to switch to an alternative expression with *être* she began to reconsider her choice of aspect:

265. D: …*elle devenait uh elle avait elle devenait fâché elle devenait elle a été*
she was becoming uh she was having she was becoming she was
266. *elle était en colère quelle était la mieux*?
she was angry which was the better one?
267. M: well uh—
268. D: she became angry
269. M: she well uh do you want to use *imparfait* or *passé composé* how do
270. you want to do it?
271. D: she became angry she was being angry she became angry that's what I
272. want to say
273. M: right well um you could use the verb *se fâcher* [but would it change
to be angry
274. sort of how you
275. D: (to self) it's a verb]
276. M: you know what you're emphasizing if you're using *imparfait* or *passé*
277. *composé* like um if you were saying just here a second ago she got angry
278. D: there was a definite point where she became angry so that would be
279. *passé composé*
280. M: yeah
281. D: *elle s'est fâché? Elle s'est fâché et uh juste après ça*…
she got angry? She got angry and uh just after that

Donna enlists M to help determine the appropriateness of the forms she has produced, and in lines 268 and 271 she provides a translation in English of the idea she is trying to express. She has already determined the meaning in English and she is aware that the aspect she chooses could alter that meaning. The problem may be due in part to the fact that the verb "to be" is very often used to translate the French PI constructions into English (e.g., she was talking), and so students often mistakenly equate this verb with the *imparfait*.

Unlike in the earlier DA interactions we considered, here M does not provide clues or reminders to help Donna. In fact, his only response to her question is to simply ask which aspect she would like to use, attempting in this way to help her consider the difference in meaning between the *passé composé* and the *imparfait*. Donna assumes a leading role in the exchange, using English to mediate her focus on meaning, as she and M had done frequently throughout the DA program. She arrives at two versions of the statement, one using the PP and the other the PI. In this way, Donna illustrates that she does indeed understand the changes in meaning that result from both forms. Once she has settled on the PP, M then addresses her lexical choice of the verb *devenir*, suggesting instead the more common *se fâcher* (to be angry) in line 273, and Donna can be heard making a mental note that the adjective form *fâché* she had used earlier also exists as a verb. Before moving on, M ascertains whether Donna also understands how her choice impacts upon the portrayal of events in the story. In lines 278 and 279 Donna explains her decision, describing her choice as emphasizing the change in the character's state of being.

In this instance, M's role was that of a sounding board as Donna considered the linguistic structure she needed. It was Donna who constructed the meaning and,

based on her understanding of tense and aspect, selected the PP to link the events in the narrative. Of course while Donna's performance here was largely independent, it is not certain how she would have performed had the opportunity to interact with M been removed. That is, simply having M present appears to have made a difference for Donna. This finding is supported by Aljaafreh and Lantolf (1994), who argue that a learner performing a task in isolation is qualitatively different from that individual engaging in the same task in the presence of another person, even when the latter is not overtly providing any interaction (p. 471). According to the authors, both activities are social from a Vygotskian perspective but only the latter activity is collaborative. This is so because the presence of another person results in a "collaborative posture" whereby the learner's orientation to the task shifts. The expectation is no longer that the learner will work independently but will be able to interact, the partner's presence thus representing "the minimal form of other derived help available to the learner" (ibid.). In the example involving Donna, M was not needed to lead her to a correct response or provide hints to help her form the target structure; instead, he was simply present to prompt her verbalizations and serve as an interlocutor to whom she could ask questions, even though she ended up providing the answers herself.

An additional example of a similar interaction occurred during Donna's first transcendence (TR) session, as she narrated a scene from *The Pianist* in which the protagonist eludes German soldiers:

282. D: *il savait bien qu'il y a quelqu'un qu'il y avait quelqu'un qu'il y avait*
he knew well that there is someone that there was someone that there was
283. *quelqu'un dans l'atelier mais le soldat ne peut* trouver donc tout à fait—*
someone in the attic but the soldier can't find therefore completely
284. M: *il savait bien qu'il y avait quelqu'un dans l'atelier mais il*?
he knew well that there was someone in the attic but he?
285. D: *il ne pouvait pas trouver il ne pouvait pas le trouver, c'est mieux que il*
he couldn't find he couldn't find him, that's better than he
286. *n'a pas pu le trouver?*
couldn't find him?
287. M: I guess it depends on the meaning right? *il ne pouvait pas trouver* or *il*
288. *n'a pas pu trouvé* either is grammatical…
289. D: *je peux faire l'imparfait je crois*
I'll do the imperfect I think
290. M: alright
291. D: *il ne pouvait pas trouver—*
he couldn't find
292. M: you see the difference in meaning between the two?
293. D: well he couldn't find him and then he stopped looking for him would
294. be the *passé composé l'imparfait* would be he couldn't find him but
295. there's no it doesn't imply a time when the soldier stopped looking for
296. him
297. M: right so it kind of like depends I think on what you follow it up with

Donna initially used the verbs *savoir* (to know) and *avoir* (to have) in the past but then slips into the present in line 283 with the verb *pouvoir* (to be able to). M interrupts to request that she repeat that part of her utterance, and when Donna complies she changes her present-tense construction with *pouvoir* to the past, but vascillates between the PP and the PI. She requests further assistance from M who, rather than answering that one is better than the other, reminds her that her choice is necessarily linked to meaning and that either aspect can be used with *pouvoir*. Donna settles on her first choice, the PI, and when asked to verbalize her reasoning, she explains in lines 293–296 the different implications for the story of using one aspect over the other.

Again, M's reduced role in all this must be stressed. Donna's performance in both these episodes provides evidence of her conceptual understanding of tense and aspect and her conscious control over these throughout her narratives. Her performance though is not completely independent, as she continues to look to M for guidance. Her performance at this point is primarily being mediated by the presence of another, as she uses this as an opportunity to pause and reconsider the meanings she is expressing.

6.3.2 Verbalization and Online Reasoning

In other instances, learners may function somewhat less autonomously, but by talking about the narrative and their use of the language they are able to think through specific linguistic forms and arrive at a more appropriate selection relative to the meaning they wish to convey. While such verbalizations might be prompted by a request for clarification or explanation from M, they usually do not involve M asking leading questions, providing hints, or offering explanations. Of course, as discussed above, his presence may affect learners' orientation to the task. However, at the overt level, his primary contribution is encouraging learners to reflect on their performance. As we will see, this form of "talking it out" is an important form of mediation.

Swain and Lapkin (2002) have also noted the pedagogical value of verbalizations about the difficulty of a particular task as a step toward problem solution. They have referred to this phenomenon as "talking it through." Working within a Vygotskian theoretical framework, these researchers argue that the dialogue that emerges between learners as they engage in an instructional activity can be viewed as an externalization of thought, which in its spoken form is more easily scrutinized. Following Gal'perin's recommendations for the various stages of internalization, Swain and Lapkin suggest that, within the domain of language learning, externalization of thought can facilitate learners' comprehension of language form and lexical choice (p. 285). In their work with French immersion students, these authors have observed dyads engaged in collaboratively analyzing written narratives in the L2 and found that the learners' discussions of the linguistic forms led to improved individual performance on subsequent assessments. Appel and Lantolf (1994), in their study of language learners' recall and comprehension of written

texts, also point to the self-mediational quality of verbalizations in the L1 and L2. Situating their work within a broader discussion of private and social speech, they point out that complex problems often result in individuals relying on verbalizations to mediate themselves as they complete the task. Interestingly, the authors cite a study by O'Connell (1988), who noted that the nineteenth century German writer Heinrich von Kleist made a similar observation about the powerful role of speech in resolving problems. In one of von Kleist's revealingly titled stories, *On the Gradual Working Out of One's Thoughts in the Process of Speaking*, one character advises another on a useful method for understanding a situation: find someone who will listen as you describe the matter in detail (Appel and Lantolf, 1994, p. 438).

The following excerpt from Amanda's DA narrative at the end of the program illustrates von Kleist's argument about the importance of telling another person about a problem or difficulty as a means of resolving it. Amanda uses the verb *être* (to be) in the *passé composé*, but she reconsiders this choice while formulating an explanation for M:

298. 1A: *et um Samuel lui a demand demandé um si sa femme Christine a été**
and um Samuel ask him asked um if his wife Christine was
299. *enceinte um quand elle est partie*
pregnant um when she left
300. M: *que sa femme*?
That his wife?
301. A: *a été enceinte*
was pregnant
302. M: *a été* using *passé composé* because it was?
303. A: because it was if she was pregnant when she left so at that time (…)
304. M: right
305. A: it would be *était enceinte*
was pregnant
306. M: yeah I think *était enceinte* because it's we're not really about the
307. beginning or the end or something it's just if she was pregnant or not

It is in responding to M's request for an explanation that Amanda pauses and considers the explanation she is giving and what she knows about aspect. While she is thinking, M acknowledges her explanation in line 304, and Amanda connects the meaning she is trying to express to the form that will allow her to do so, settling on the PI of *être*, which she produces correctly in line 305.

A similar example occurred with Donna as she completed the same task. In this instance, she was trying to explain that the character Samuel was shocked to learn that his wife was pregnant. Initially, in line 309, she oscillates between the PI and the PP of *être* and M interrupts to determine which aspect she believes is most appropriate and why:

308. D: *…en traîn de compter dans un livre tout à coup elle a dit à Samuel ah*
in the process of counting in a book all of a sudden she said to Samuel
309. *bon je suis enceinte et Samuel était très choqué a été choqué était choqué*
well I am pregnant and Samuel was very shocked was shocked was shocked

310. M: which one?
311. D: (laughs) okay
312. M: *était, a été*?
313. D: *c'était un choque à lui cette nouvelle donc il était choqué et ça juste*
it was a shock to him this news so he was shocked and that just after
314. *après ça—*
that
315. M: *il était choqué—*
he was shocked
316. D: *il était choqué à cause de cette nouvelle*
he was shocked because of this news
317. M: okay, using *imparfait*
318. D: using *imparfait*
319. M: because?
320. D: *parce que il était choqué* he was shocked he started to be shocked and
321. continued to be shocked by this news but I think I first chose *passé*
322. *composé* to note that at a very distinct point he started to become shocked
323. M: so emphasizing that?
324. D: right so maybe what I want to say *is il a il a été choqué*
325. M: and I think if you were to add something like *par ces nouvelles* [by this
326. news you know
327. D: *par ces nouvelles*]

Both aspects are frequently used in such constructions. Consequently, M accepts Donna's use of the *imparfait* but questions her reasoning. The explanation that she provides M leads her to reconsider her initial decision as she realizes that the PP more appropriately expresses the meaning that the character "became shocked." Once again, the decision of how to portray the events in the narrative rests with the learner. M's contributions encourage Donna to reflect on the most appropriate linguistic form that will allow her to express this meaning. The performance, then, is still distributed, as Donna continues to be mediated by M. However, this mediation is not aimed at pointing out an error and helping the learner to correct it. Instead, Donna has taken on enough responsibility for the performance at this point that her dialogue with M now serves to help her step back from the narrative and consider the changes in meaning that result from the PP and the PI, and this better positions her to decide which form matches the meaning she is constructing.

6.4 Conclusion

As explained in Chapter 2, Vygotsky (1998) argued against the general view that the purpose of assessment should be to *measure* an individual's knowledge or abilities, proposing instead that the goal should be to correctly *interpret* learners. Vygotsky's position resonates particularly well in classroom contexts, where teachers

are ideally less concerned with where learners' test scores fall in a normalized distribution than they are with actually understanding the processes of learners' development and the causes underlying poor performance.

In this chapter I have presented mediator–learner interactions that illustrate DA's potential to provide a much more detailed view of learners' L2 development than would be likely to emerge from non-dynamic approaches. It is difficult to conceive how, for example, a non-dynamic procedure would have revealed Donna's confusion over producing PP forms of pronominal verbs or the reasons behind Nancy's initial avoidance of the PI and her subsequent struggle to overcome a rule-based understanding of the *passé composé-imparfait* distinction and to follow a conceptual understanding of verbal aspect. Such diagnoses were only possible through mediator–learner cooperative dialoguing in which mediation was carefully calibrated to the individual's ZPD. In some cases, this meant that the mediator provided very explicit and detailed comments about specific features of learners' narratives while in others it simply entailed asking learners to verbalize their reasoning.

Of course, the DA interactions considered in this chapter also showcase that for Vygotsky diagnosis involves not simply documenting a problem's existence but also active intervention. In effective, the dialectic integration of instruction and assessment means that diagnosis is only possible through intervention, or that promoting L2 development is the only path to fully understanding it. In Chapter 7, we will examine mediator–learner interactions to track learner development as it emerges both over time (i.e., across DA sessions) as well as within a single session. To borrow Feuerstein's term, learners' "modifiability" through DA is a powerful argument in favor of redefining assessment as an activity that asks not which learners have succeeded or might succeed but that accepts the reality that all learners can succeed when offered appropriate mediation.

Chapter 7
Promoting L2 Development Through Dynamic Assessment

Abstract This chapter examines the impact on development of mediator–learner interactions in the Zone of Proximal Development. Specifically, learner development is tracked across sessions by analyzing their contributions to DA at different points in time, while also bearing in mind that learners may develop during a single interaction. Applying these two time scales to the French L2 DA program, mediator–learner interactions during the initial DA session are compared with those of the DA and transcendence (TR) sessions at the end of the program in order to identify development that occurred through participation in DA.

Keywords Tracking development, transcendence, zone of proximal development, reciprocity

7.1 Introduction

The present chapter examines the impact on development of mediator–learner interactions in the Zone of Proximal Development. Specifically, we will consider how learner development can be tracked across sessions by analyzing their contributions to Dynamic Assessment at different points in time, while also bearing in mind that learners may develop during a single interaction. Applying these two timescales to the French L2 DA program, I compare mediator–learner interactions during the initial DA session with those of the DA and transcendence (TR) sessions at the end of the program in order to identify development that occurred through participation in DA.

The first set of DA interactions described in this chapter reveal learners' emerging conceptual understanding of verbal aspect and their increased control over the relevant verb forms as they progress through the DA program. These changes over time are apparent when one compares learners' interactions with the mediator at the start and end of the DA program. I then explore the issue of learner autonomy, understood as learners' efforts to accept greater responsibility for performance, and consequently for their own development. I present examples in which learners struggle to regulate their own behavior and even endeavor to extend their knowledge to linguistic

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structures other than those under study. This latter feature of mediator–learner dialogues highlights how learners' new conceptual understandings position them to encounter new material. The chapter concludes with thoughts on the importance of correctly interpreting learners' needs in order to promote development, and an example of when this fails to happen.

7.2 Evidence of Development over Time

As described in detail in Chapters 2 and 3, working in the ZPD involves dialogically supporting individuals in ways that take account of their maturing abilities. The present discussion examines specific interactions with individual learners and traces how these interactions changed over time. As explained earlier, it would be a mistake to define development exclusively in terms of attaining self-regulation or autonomous performance. Such a restricted view of abilities robs us of a clear understanding of the dynamics of their development. Following Aljaafreh and Lantolf's (1994) reasoning that development in the ZPD can result in sometimes subtle changes in mediator–learner interactions, we will consider instances in which, over time learners came to require less explicit mediation and they began to reciprocate in more agentive ways. This was especially evident in the case of Sara.

7.2.1 Change in Learner Responsiveness over Time

Sara wrestled with aspect and with the formation of the present perfective and imperfective (PP and PI, respectively) during her initial DA session as well as when she repeated it at the end of the program. At both points in time, her independent performance contained many errors and she required mediator intervention. As we will see, simply judging Sara on the basis of the product of her performance would miss the development that occurred during the DA program, because although she commits errors in both instances, these errors do not have the same psychological status. In the following excerpt, Sara is struggling to use the verb *savoir* (to know) during her first DA narration as she describes a conversation between two characters in *Nine Months*:

1. S: *oui et uh il avait l'accident avec Julianne Moore comme ça et Julianne*
   yes and uh he had the accident with Julianne Moore like that and Julianne
2. *Moore elle elle sait que il ne elle a sait* que il ne veut pas le bébé*
   Moore she she knows that he she knew that he doesn't want the baby
3. M: *elle a sait*, right um there's something with that verb there
4. S: *oui* uh, (whispering) I don't remember any of the formal French right now
5. but um (…)
6. M: well I mean which verb tense would you use there? For *elle a sait* que*?

7. S: It's *imparfait*
8. M: it would be *imparfait* oh okay
9. S: yeah because it's an emotion and I know that *elle sa sait* would *elle a sait**
10. (…) uh um (…) I've forgotten
11. M: right well it's the verb *savoir*
12. S: *savoir* right
13. M: so it's the imperfect of *savoir* that's what you're looking for?
14. S: yes
15. M: *savait*
16. S: *savait*
17. M: *savait*
18. S: *c'est s-a-v*
19. M: right it's that regular ending right—
20. S: yeah a-i-t right? for *savoir* (…) *elle savait que Hugh Grant il ne veut pas*
she knew that Hugh Grant doesn't want
21. *elle ne il ne veut pas un enfant* she he doesn't want a baby

In line 2 Sarah first uses *savoir* in the present tense but then, realizing that she is referencing the past, attempts to self-correct and changes to the *passé composé*. While she correctly selects the auxiliary verb *avoir* and the appropriate form *a*, she produces the incorrect past participle *sait*. At this point, M intervenes by first repeating her utterance and then stating that there is a problem with the verb. In fact, there were two problems – Sara had opted for the PP when the PI would have been more appropriate, and she incorrectly formed the past participle of the verb *savoir* – but M merely points out the location of the problem. When Sara is unable to respond, M provides a more explicit prompt asking her which aspect she is using, and then asks her to explain her reasoning. Surprisingly, Sara states that she is using the PI and not the PP, and she explains that the former is the appropriate aspect because her utterance describes how the character Rebecca was feeling. Thus it appears that despite her difficulty in producing the form, Sara has some understanding of the ways in which the two aspects are often used, even if this understanding is based on lists of rules (e.g., the PI is used to describe emotional states) rather than a conceptual grasp of aspect.

Once it becomes clear to M in line 8 that Sara is in fact trying to use the appropriate aspect, he focuses on helping her correctly form the *imparfait* of *savoir*. He first names the infinitive in line 11, which is a fairly explicit clue to the needed form because the infinitive *savoir* contains the appropriate imperfect stem *sav-*. Sara is still unable to respond and so M makes another request for clarification, evoking both the infinitive and the aspect (*imparfait*) in line 13. When this also fails to move Sara any closer to the correct form, M provides it. Interestingly, Sara not only repeats the appropriate form, *savait*, but also spells both the stem and the correct third person singular ending. The fact that she spelled the form is noteworthy for two reasons. First, it indicates that Sara was at least able to recognize the PI form even if she was not yet able to produce it independently. In other words, she does have some knowledge of how the PI is formed in French. Moreover, her desire

to spell the verb is striking because the task is oral, not written; the spelling should not matter. This would seem to be an example of the impact of written language on speaking. This point is returned to below in the discussion of concretization of linguistic forms as a means of self-regulation.

In the same turn where Sara incorporates *savait* into her narrative, she also produces *veut*, a present tense form of the verb *vouloir* (to want). M intervenes again prompting her to render the verb in the past tense rather than the present:

22. S: … *elle savait que Hugh Grant il ne veut pas elle ne il ne veut pas un*
    … she knew that Hugh Grant he doesn't want she he doesn't want a
23. *enfant*
    baby
24. M: just to interrupt one more time—
25. S: that's fine
26. M: I know I'm focusing a lot on verbs but you said that *Hugh Grant ne veut*
27. *pas? Um*
28. S: (to self) he did not want (aloud) yeah he did not want is *passé* that's true
29. M: okay
30. S: I know (laughs) I know when I'm wrong [if I just think about it (laughing)
31. M: that's good that's good]
32. S: *Julianne Moore um elle savait que il n'a veut* pas*
    Julianne Moore um she knew that he didn't want
33. M: actually it's the same kind of ending except that it's the verb *vouloir*
34. right?
35. S: *voulait il ne voulait pas mais uh elle était très um elle était très um* sad (…)
    wanted he didn't want but uh she was very um she was very um sad (…)

This time, M simply repeats the inappropriate structure in lines 26 and 27, and Sara responds by explaining what she is trying to say in English. This response helps her to realize that she should be using the past rather than the present tense. She enters the narrative again and attempts to self-correct, repeating her last utterance with *savait*, but this time changing *veut* from the present to the past. The result is the erroneous form *a veut* in line 32, which clearly resembles her earlier formation *a sait* (line 9), and which she stated was supposed to be the PI. The rule Sara seems to be following for the formation of the *imparfait* is to pre-pose the auxiliary in combination with the third person singular present tense form of the verb rather than the past participle. In other words, Sara has at least some understanding of how to use aspect to express certain meanings (i.e., she explains that she her intention is to use the PI and not the PP) but she is unable to produce the correct forms of the verbs in the PI.

Attempting to draw a connection to their negotiation of the verb *savoir* only a moment earlier, M (line 33) provides Sara with a fairly explicit clue regarding how she should form the PI of *vouloir* – he names the infinitive and states that it

takes the same regular *imparfait* ending. Sara then produces the correct *voulait* and continues her narrative. In the same line (35) she also correctly forms the PI of the verb *être* (to be). This episode demonstrates that at the start of the DA program, Sara's knowledge of PI was just beginning to ripen but she was very far from fully controlling it. Specifically, M noted that Sara remembered that the PI is often linked to descriptions of emotion and that she was able to recognize the correct form when it was provided but she continued to either avoid the option or to form it incorrectly throughout the remainder of the session. This information guided M's interactions with Sara throughout their subsequent interactions, and unlike with the other learners, much time was devoted to reviewing the formation of the *imparfait*.

Upon repeating this task at the end of the DA program, Sara once again attempted to produce the PI of *savoir* during her narrative. This time, she actually begins by using another verb, *comprendre* (to understand), in the present tense. When M asks her to repeat what she said she switches to *savoir* but, as before, uses the present tense:

36. S: *enceinte! Enceinté, uh Samuel Rebecca a dit qu'elle ne comprend pas*
    pregnant! Pregnant, uh Samuel Rebecca said that she doesn't understand
37. *pourquoi il était enceinte mais la*
    why he was pregnant but the
38. M: *Rebecca a dit?* Sorry
39. S: *Rebecca a dit que elle ne sss (…) sa, elle ne sait pas* she did not know elle
    Rebecca said that she doesn't know she did not know she
40. *ne sait pas pourquoi*
    does not know why
41. M: Well actually *elle ne sait pas* is present tense
42. S: it's present tense which is wrong
43. M: because you said she did not know so that would be past tense
44. S: the past tense *elle ne su pas** that's wrong (…)
45. M: were you looking for *imparfait* or *passé composé*?
46. S: (…) it's *imparfait*
47. M: okay so you would use the form of *savoir*—
48. S: *elle ne savait pas*
    she didn't know
49. M: *voilà*
50. S: I forgot it's *savoir*, *elle ne savait pas pourquoi il il était dans sa situation*
    she didn't know why he he was in his situation
51. *aussi mais elle était…*
    also but she was…

In response to M's request that she repeat her utterance, Sara switches from the present of *comprendre* to the present of *savoir*, and uses English to think through how she wants to portray the scene, ultimately arriving at the construction *"elle ne sait pas pourquoi"* in lines 39 and 40. Of course, using the English "she did not know" is only partially successful, as it helps her to select the verb *savoir*, the subject

elle, and the negative particles, but she slips from the past tense (in English) into the present tense (in French). This time, M points out that she is using one tense in English and another in French, and Sara's remark in line 42 indicates that she is aware of the switch and that she also knows that her use of the present tense in French is incorrect. This awareness already says a good deal about Sara's level of development – she understands which forms she should use even if she is not able to produce them on her own, a finding similar to that observed by Antón (2003) in her work with advanced learners of Spanish.

In line 44, Sara tries to render *savoir* in the past tense but instantly recognizes that the form she produced, *su*, is not correct. In this case, her recognition of the error is prompted by her externalization of the form rather than by the mediator. That is, her own output signals the mistake to her. As in the earlier session, M decides to move to a much more explicit prompt, and so he asks which aspect she wants to use and then reminds her that the infinitive is *savoir*. Unlike during their earlier interaction, this is sufficient for Sara to produce the correct form, *savait* in line 48. In fact, Sara produces the entire utterance, including the subject pronoun and the negative particles. The simple clue of reminding her of the infinitive form of the verb was sufficient, as she admits in line 50 that she forgot it was *savoir*.

In neither of these sessions does Sara exhibit mastery of French aspect. However, comparing the difference in her performance narrating the same video clip and struggling with the same structures suggests that she was much closer to independent control in the second session than in the first. Indeed, during her initial DA M had to provide and repeat the correct form while Sara checked to make sure she understood the spelling of the stem and the ending. In the second DA interaction, she knew which aspect she wanted to use and was capable of forming the PI but needed to be reminded of the infinitive form of the verb. In Vygotskian terms, Sara's control of aspect had not yet fully matured but had qualitatively changed – or ripened – through the course of the L2 DA program, and this development should not be discounted. In a non-dynamic procedure this type of insight into development would be much less likely to emerge.

A similar example also comes from Sara and involves the verb *croire* (to believe). In the following excerpt from her first DA narration, she is struggling with both the selection and formation of an appropriate verb form as she explains that Hugh Grant's character could not believe the news of his girlfriend's pregnancy:

52. S: *elle est enceinte elle est oh d'accord, Julianne Moore elle est enceinte de la*
she is pregnant she is oh okay, Julianne Moore she is pregnant with the
53. *bébé* (laughs) *de la bébé de Hugh Grant mais Hugh Grant ne croit pas pour—*
baby (laughs) with Hugh Grant's baby but Hugh Grant does not believe for
54. M: but in the past
55. S: *n'a croit pas*, n'a croyé pas**
didn't believe, didn't believe
56. M: yeah um (…)
57. S: uh *j'oublie*
uh I forget
58. M: right because it was more a description [of him right?

59. S: *oui] alors il est imparfait*
    yes so it is imperfect
60. M: *voilà voilà* so you would say?
61. S: *je sais je sais mais je n'ai pas le* used *imparfait pour beaucoup de fois alors (?)*
    I know I know but I haven't used the imperfect for a long time so
62. (…)
63. M: *il ne croyait pas*
    he didn't believe
64. S: *il ne croyait pas et uh um il fait l'accident de son voiture*
    he didn't believe and uh um he has a car accident

In line 53 Sara initially uses the verb *croire* in the present tense, and thus M begins the intervention by reminding her that her narrative should be in the past in line 54. In response, Sara tries to change the verb *croire* to the PP but is unable to form the correct past participle (*cru*) and also fails to mark negation appropriately (with the particle *pas* immediately following the auxiliary *a*). In line 58, rather than addressing the errors with the PP, M offers a hint to indicate that the PI would be more appropriate. Given that this interaction occurred at the outset of the DA program and before M had introduced the concept of verbal aspect, M opted to merely point out that the use of *croire* in this instance can be thought of as a description of what Samuel's character was feeling. Although Sara recognizes this as a case in which the *imparfait* is often used, she admits, in line 61, that she does not know how to form the PI of *croire*. Eventually, M supplies her with the correct form.

When Sara renarrates this same scene at the end of the DA program, the verb *croire* appears once again:

65. S: *enceinte, elle était enceinte avec le bébé de Samuel et Samuel n'a pas*
    pregnant, she was pregnant with Samuel's baby and Samuel didn't
66. *croyé* et pose pour le moment il a um (…)*
    believe and asks for the moment he um
67. M: *oui, le verbe* there's something there with the verb, you just used the
68. S: *imparfait (?)*
69. M: what was it?
70. S: *croyé**
71. M: *n'a pas croyé** using the
72. S*: n'a pas la croyé** did not believe at that time
73. M: using *passé composé*?
74. S: yes
75. M: right so then it's not *n'a pas croyé* but *n'a pas* (…) do you remember? it's
76. irregular
77. S: *croit?*
78. M: uh
79. S: it's *cru*
80. M: *cru*
81. S: see I remember that

82. M: exactly *n'a pas cru*
83. S: yeah *ne l'a pas cru* did not believe it *ne l'a pas cru* …

In comparison with her earlier attempt, Sara's performance here is markedly different, although still not fully accurate. First, she uses the verb in the past, but as in the earlier session, she has difficulty forming the past participle of *croire*. This time, however, the rest of the structure is correct. When M draws her attention to the verb, she mistakenly concludes that the problem lies in her choice of aspect and initially switches to the PI. At this point, in line 71, M repeats her utterance, which is sufficient for Sara to recognize that she had used the PP. In line 72 she states in English "did not believe at that time," affirming that her selection of the PP was motivated by the meaning she wished to express. M actually had the PI in mind, but upon hearing Sara's thoughts in English decided to accept her preference for a PP construction. In lines 75 and 76 M repeats Sara's utterance again, drawing her attention to the past participle and reminding her that it is irregular. Unlike in DA1, Sara recalls the irregular form *cru*, and in fact even correctly inserts the direct object pronoun *l'* (it) into her revised utterance. Again, while a non-dynamic procedure might simply surmise that in neither interaction was Sara able to appropriately use the *passé composé* and the *imparfait*, our analysis reveals that such a conclusion would obscure Sara's obvious development during the DA program.

7.2.2 Conceptual Shifts in Understanding over Time

As explained in Chapter 5, Negueruela's (2003) work on concept-based language instruction with L2 learners of Spanish revealed that development can manifest itself not only in learners' control over linguistic forms in spontaneous performance but also in their verbalizations about the forms. Therefore, in addition to tracking changes in the appropriateness of learners' use of tense and aspect during their French narration tasks, we must also consider their comments regarding their understanding of the semantic consequences of choosing one form over the other. In some cases, learners verbalize their ideas spontaneously as they think through what they want to say, but at other times it is important for the mediator to interrupt to seek clarification of the learner's intended meaning. In the preceding chapter I argued that learners' verbalizations were in themselves a form of mediation that helped learners reevaluate their performance. I now present examples of learner verbalizations at the beginning and conclusion of the DA program in order to study changes in their conceptual understanding.

An excellent illustration of this kind of change over time occurred with Jess, a learner who greatly improved her control over the *passé composé* and *imparfait* during the program. In the following excerpt her first DA session, Jess is describing a scene from *Nine Months* where Hugh Grant's character imagines that his girlfriend transforms into a praying mantis. Jess oscillates between the PP and the PI. Although the PP would be more appropriate in this context, she settles on the PI:

84. J: *okay, et Hugh Grant il a il a (…) Oh et son ami il a dit que qu'elle était*
and Hugh Grant he he oh and his friend he said that she was
85. *comme une, une insecte une insecte qui mangeait le mate après après le*
like a, an insect an insect that ate the mate after after
86. *sexe? Et uh et Hugh Grant, ils parlaient plus sur ce sujet et puis Hugh Grant*
sex? And uh and Hugh Grant, they were speaking more about this and then
87. *a vu a à son petite amie**
Hugh Grant saw his girlfriend

88. M: *il a vu son petite amie?*
he saw his girlfriend?
89. J: *oui*
90. M: oh right um but it's feminine
91. J: (…) *sa?*
his?
92. M: *sa petite amie*
his girlfriend
93. J: *sa petite amie* (laughs) *oui il a vu sa petite amie et il a, elle a elle a changé*
his girlfriend yes he saw his girlfriend and he she she changed
94. *elle changeait en un en une en cette insecte*
she was changing into a into a this insect
95. M: ah right okay okay
96. J: *c'est tout* (laughs)
that's all

This occurred at the very end of the session, and M chose not to intervene again to discuss Jess's use of the verb *changer* (to change).

In contrast, Jess's narration of the same scene when she repeated the task at the end of the program proceeded quite differently. During this attempt, Jess appropriately used the *imparfait* and the *passé composé* to portray different aspects of the same notion (a woman being like a praying mantis), and, importantly, she was able to offer a reasoned explanation for her choices that reveal signs of a more conceptual understanding. She first produces the following:

97. J: … *et Sean il il explique il a expliqué uh, cette cette chose à Samuel et il il a*
… and Sean he he explains he explained uh, this this thing to Samuel and
98. *déclaré qu'elle était comme une insecte*
he he declared that she was like an insect

(M and J laugh)

99. *elle était une mantis et Samuel il avait peur de Rebecca que et il parce*
she was a mantis and Samuel was afraid of Rebecca that and he
100. *qu'elle était comme une mantis maintenant*
because she was like a mantis now

(M and J laugh)

101. *il a regardé à Rebecca et elle est devenue une insecte*
he looked at Rebecca and she became an insect

M then intervenes to probe Jess's choice of the PP with the verb *devenir* (to become), which itself was perhaps a more appropriate lexical choice than the cognate *changer* (to change) that she used earlier. In particular, M contrasts Jess's use of *devenir* in the PP with two similar constructions involving *être* (to be) in the PI (one of which she produced in the same utterance as the verb *devenir*). Jess explains her use of *être* in the PI as follows:

102. J: … *insecte* okay because she was like an *insecte* it was more a description
103. of her rather than I did say *il a regardé à Rebecca et elle est devenue une*
he looked at Rebecca and she became an
104. *insecte*
insect
105. M: true! Yeah yeah using *passé composé* with *devenir* because—
106. J: and I said *Christine était comme un insecte*
Christine was like an insect
107. M: oh okay that's what it was
108. J: and I said that because—
109. M: so those are two two different things because *Christine était un insecte*
Christine was an insect
110. but um [*Rebecca est devenue insecte* right
Rebecca became an insect]
111. J: *Christine est* (…) Rebecca right
112. M: using *imparfait* for the one and *passé composé* for the other because?
113. J: oh! It's a description of Christine who's like in this situation so we don't
114. ever meet her we just get a description but Rebecca all of a sudden becomes
115. this same thing so it's like it's an actual event in the movie she becomes a
116. praying mantis
117. M: okay okay
118. J: so that would have been *passé composé*

Later in the same session after Jess had completed her narrative, M asked her about some of the structures she had produced:

119. M: A couple of things I wanted ask about was in the very very beginning
120. right how did you I just wanted to see that I got it right how did you start off
121. the uh the first thing the scene?
122. J: I said (…) I said like *ils ont conduisé** (…)
they drove
123. M: okay using right *ils ont conduisé**—
124. J: *conduit*
125. M: okay the *passé composé ils ont conduit*
126. J: *ils ont conduit*
they drove

127. M: and using *passé composé* because?
128. J: um, because it's wrong
(both J and M laugh)
129. J: I would have said *ils ils conduisaient*
they they were driving
130. M: *ils conduisaient* because?
they were driving
131. J: *la voiture de Samuel* um, because they were driving it was like the overall Samuel's car um,
132. scene
133. M: okay
134. J: we didn't know when it started
135. M: okay

Jess initially uses the verb *conduire* (to drive) in the PP but incorrectly produces the past participle. M does not correct her but simply repeats this form. Upon hearing the incorrect structure, Jess recognizes the error herself and supplies the correct past participle. M's repetition was the only mediation Jess required to correct her mistake. Then, in line 127 M questions her use of the PP, and Jess acknowledges that this, too, was incorrect. Of course, M regularly sought explanations from the learners about their reasoning, and so it is not likely that Jess simply interpreted M's query as an indication that she had made a mistake. Rather, Jess takes a moment to reconsider her choice of aspects and realizes her error. She switches to the PI of *conduire*, correctly produces the third person form of the verb, and offers an explanation as to why this is appropriate in lines 131, 132, and 134.

A similar example of learners' emergent understanding of verbal aspect involves Amanda. Despite having studied the tense–aspect relationship from a more theoretical perspective throughout the DA program, this learner continued to have difficulties selecting verb forms to encode her ideas when she reattempted the original DA narration. Interestingly, it was not until her interaction with the mediator at the end of the DA program that Amanda showed signs of following a more conceptual approach to selecting the *passé composé* and the *imparfait*. We pick up her exchange with M during the renarration task after she has already experienced problems selecting aspect and M has asked her to start over:

136. M: uh from the beginning
137. A: *Samuel et Rebecca se sont conduit* chez Sean—*
drove themselves to Sean's—
138. M: so using the *passé composé*?
139. A: *passé composé*
140. M: because?
141. A: because driving somewhere has a specific beginning and end point? so
142. they have a destination so there is an end point

As she begins the narrative again, Amanda uses the PP with the verb *conduire* (to drive), and her explanation in lines 141 and 142 reveals that she is attempting to take a conceptual approach to the *passé composé – imparfait* distinction, but she does not

yet have a fully developed understanding of aspect. Specifically, she does not realize that it is not the identification of the actual beginning or end of an event or state that defines aspect and determines which form is appropriate but the perspective one wishes to impart. It appears that she has a partial understanding of aspect that is coexisting with her previous rule-based understanding: driving somewhere is an event that has a beginning and an ending, and therefore she selects the PP. This choice does not convey the meaning she is trying to express. Amanda appears to be limited by her understanding of the language – the language is controlling her construction of the narrative rather than being controlled by her as she tells the story.

Nevertheless, her history of cooperatively dialoguing with M throughout the DA program did bring her to a point where she was able to make a rapid gain following a discussion of aspect that took place later in this session. Amanda continued her narration and, after another instance of selecting inappropriate aspect, M interrupted to question her choice. During this exchange, M and the learner came to a more detailed understanding of how aspectual options create meaning. Amanda initially produces the construction "*pendant Sean a parlé Samuel a regardé Rebecca*" (while Sean spoke Samuel looked at Rebecca), using the PP rather than the PI. After discussion with M, she states that the PI would have been more appropriate for the verb *parler*, yielding "pendant que Sean parlait Samuel a regardé Rebecca" (while Sean was speaking Samuel looked at Rebecca). However, she still seems uncertain and replies that it is not always clear to her how to decide on appropriate aspect marking. M then offers the following reminder:

143. M: okay okay because it's not whether or not the thing has an ending as
144. much as is that what you're emphasizing is that how you want to talk about it
145. A: okay that's what still gets me that would probably be it
146. M: is?
147. A: that (…) the question of emphasizing based on the tense
148. M: yeah using one tense to emphasize one part one aspect yeah yeah
149. A: and that's really something that I have to think about it so if I don't I mix
150. it up
151. M: yeah yeah okay

As Amanda begins again, it becomes clear that the verb *regarder* (to look at) should also be in the PI, and although she states in English that it "should be emphasized what he was doing while Sean was talking," she continues to mark the verb for the PP. M intervenes again with the following explanation:

152. M: okay because you see in English the difference would be like so while
153. Sean was talking Samuel looked at Rebecca as in the *passé composé* whereas
154. while he was talking Samuel was looking at Rebecca in the *imparfait*
155. right … if you're using the *imparfait* he was looking at her you're not really
156. talking about beginning or ending you're just saying he was looking at her
157. and that was it, do you see what I mean?
158. A: yeah

Here M points out the difference in meaning in English between the two aspects and explicitly explains the effect of using one over the other. What is of interest is that Amanda drew on this discussion as she continued her narration during that session; as a result her understanding of how aspect functions in French seemed clearer. For example, after she had completed the task, M asks her to return to the first part of the clip:

159. M: … could you just do the very very beginning of the scene again?
160. A: sure, *ils se se se conduisaient* et Samuel parlait de ses opinions de des*
they were driving themselves and Samuel was talking about his opinions of of
161. *parents et de leurs responsabilités des enfants*
parents and their responsibilities of children
162. M: yeah that's good just a little more
163. A: *et pendant pendant il parlait Rebecca a dit oui oui et enfin um il ou elle a*
and while while he was talking Rebecca said yeah yeah and finally um he or she
164. *annoncé qu'elle était enceinte et Samuel a crié quoi et il a perdu contrôle*
announced that she was pregnant and Samuel screamed what and he lost control
165. M: yeah okay okay now in that one you started off using the *imparfait* with
166. the verbs *conduire* and *parler* because?
167. A: because thinking about what we just talked about it was while he was
168. driving and then the scene they were driving he was talking and then she
169. said that she was pregnant

Her control of aspect is excellent during this attempt, and when questioned by M, she references the earlier discussion and provides an English translation that matches her French constructions. Moreover, this improved understanding carried over to the transcendence tasks. During her narration of a reading from Voltaire's *Candide* in the second TR, M questions her choice of aspect as she describes Candide's acceptance of the claims made by his teacher, Pangloss. Amanda offers the follow reasoned explanation for using the verb *dire* (to say) at one point in the PI and later in the PP:

170. A: (also laughing) *peut-être pour lui il croyait tout que Pangloss lui a disait**
maybe for him he believed everything that Pangloss told him
171. *pendant ses lectures*
during his lectures
172. M: *il croyait tout ce que Pangloss?*
he believed everything that Pangloss
173. A: *uh a dit? a parlé? a discuté? pendant ses lectures*
uh said? Spoke? Discussed? During his lectures
174. M: *lui a dit ou tout ce dont Pangloss a parlé on parlait de* something so it told him or everything about which Pangloss spoke or would speak

175. would become *dont ce dont Pangloss a parlé ou a discuté* so you're using
about which Pangloss spoke or discussed
176. *passé composé?*
177. A: *oui pendant ce lecture où ils se sont discuté* de peut-être cette (…) cette*
yes during this lecture where they discussed maybe this this
178. *session particulier*
particular session
179. M: okay *ce sujet par exemple*
okay this subject for example
180. A: *oui ce sujet spécifique et-*
yes this specific subject and-
181. M: now earlier sorry I just heard you say earlier when you introduced
182. Pangloss you said that *Candide croyait tout ce que Pangloss disait* using uh
believed everything that Pangloss would say
183. *imparfait* now this is almost the same structure because here you're saying
184. *Candide croyait tout ce que Pangloss lui a dit* um I was just wondering
believed everything that Pangloss told him
185. if that was like if you're yeah what do you think?
186. A: *le premier c'est pour en général dans touts les leçons touts les sujets et le*
the first it's for in general all the lessons all the subjects and the
187. *deuxième c'est pour le sujet spécifique*
second that's for the specific subject
188. M: oh okay *ce sujet-là* okay
189. A: *ce sujet oui la session que le livre a présenté quand Cunégonde entrait et*
this subject yes the session that the book presented when Cunégonde was
190. *écoutait à Pangloss*
191. entering and listening to Pangloss

Amanda sees a distinction between using the verb *dire* to describe what Pangloss would say or always said, and using that same verb to explain what he said on a particular occasion. Her improved control over aspect and the conceptually more sophisticated nature of her explanations indicate that her understanding throughout the DA program and particularly during her interaction with M as she repeated the initial narrative task. In fact, she had developed to a point where she was able to successfully carry out the TR tasks.

Thus far, I have argued that learners' conceptual understanding of verbal aspect and their control over the PP and PI forms in French developed over the course of their interactions with the mediator. I have found evidence to support this evaluation by comparing mediator–learner interactions at the outset and conclusion of the DA program. In itself, this change over time is a powerful testimonial to the potential of dialogic collaboration in the ZPD to promote learner development. However, this is not the entirety of DA's impact on development. In addition to the benefits already described, I submit that DA interactions can also help learners to become more agentive, taking on greater responsibility for their learning. The protocols that follow illustrate how this played out in the L2 DA program under consideration.

7.3 Learners' Emerging Autonomy

Two phenomena in particular can be used to support claims about learner autonomy in the L2 DA program. The first concerns learners' efforts to self-mediate, or self-regulate, rather than to rely exclusively on M. This implies learners recognizing a problem in performance expressing their ideas and then taking steps to overcome the difficulty by employing strategies they used in their interactions with M or devising new ones. An additional form of autonomy occurred as learners took the initiative to stretch their abilities by applying their conceptual knowledge of verbal aspect to related features of the language. In other words, learners were engaging in a form of transcendence, not from one task to another but from one linguistic construction to another.

7.3.1 Materialization as a Technique for Self-regulation

In the preceding chapter, I noted that verbalizing one's thoughts can function as a form of mediation. Verbalization, however, was not the only way that learners in this L2 DA program found to mediate themselves, or to self-regulate. Indeed, during the earlier discussion of Sara's first DA session it was pointed out that she spelled the necessary verb form *savait* after M provided it, in this way she displayed that she had some knowledge of how to form the PI. Rendering the language in a more material form may enable learners to better reflect on and manipulate specific structures. Of course, in most non-dynamic approaches such an attempt to achieve self-regulation would likely be disregarded because interest is in whether learners can produce the needed forms; once an error is made, there is nothing the learner can do about it and the performance moves on. In DA errors in themselves have far less importance than the underlying sources of the errors since only the latter have explanatory power. Furthermore, in DA mediation plays the crucial role not of simply documenting that an error has occurred but, rather, it serves to highlight the sources of the error and to help the individual overcome it. In the examples that follow, we see that a more material representation of the language helps learners to struggle through and overcome difficulties during DA. In some cases, learners needed only to spell forms or structures orally while in others they actually wrote out what they were trying to say. Of course, spelling should not be relevant to oral performance, but for some learners of L2 French in this DA program it became an important strategy of self-regulation.

The following example is taken from Jess's first TR narrative and involves the introduction of an unfamiliar word. Jess is attempting to relate a gunfight from *The Pianist* between German soldiers and members of a Jewish resistance:

192. J: … *il y a des il y avait des* shots that got fired?
… there are some there were some
193. M: uh yeah *coups* again
194. J: *coups d'arme?*

195. M: uh *coups de fusil*
gunshots
196. J: *coups de fusil?*
gunshots
197. M: […]
198. J: *comment est-ce que ça s'écrit?*
How do you spell that?
[M writes *coup de fusil* on paper for J]
199. J: oh *fusil* like fuselage
200. M: uh right uh *un fusil* is a rifle you can also say *une carabine* is also a rifle
201. J: okay *tout à coup il y avait des coups de fusil et les les les soldats nazis uh*
okay all of a sudden there were gun shots and the the the Nazi soldiers uh
202. *est morts*
died

Initially in line 192 Jess reverts to English, asking M for assistance because she has not learned the term for "gunshots" in French. M supplies only the first part of the answer, *coups*, which had come up earlier in the session and waits to see if Jess is able to produce the rest of the expression *coups de fusil*. Jess realizes something is missing from M's answer and attempts to supply the missing descriptor, incorrectly guessing the word *arme* (weapon). When M responds with the correct term *fusil* Jess repeats the full expression but her questioning intonation suggests some uncertainty. She then asks for the spelling of the unfamiliar lexical item in line 197. In this case, she writes the expression as an aide to comprehending it, and indeed draws a connection between the French *fusil* and the English word "fuselage." While the meanings are certainly not the same, it may serve as a mnemonic that, coupled with the act of writing the expression, might help Jess to remember it in the future. During the rest of that session Jess used the expression several times without referring to the words on the paper, as in the following:

203. J: … *ils ont été tués par des coups des fusil aussi les coups de fusil*
… they were killed by gunshots also the gunshots
204. *continuaient pendant la nuit*
were going on throughout the night

A related example occurred during Sara's narration of the same scene as she endeavored to use the verb *mourir* (to die) to express the death of several German soldiers during the battle. While she appropriately determines that the PP is needed, she produces three errors in her construction in line 205 below: she follows a rule for producing past participles for verbs ending in *–ir* in French, but *mourir* has an irregular past participle, *mort*; the verb *mourir* also requires *être* as its auxiliary rather than the more common *avoir* that Sara employs; and *ils* is the third person plural pronoun but Sara uses *a*, the singular form of the auxiliary:

205. S: *les soldats nazis allemands ils a mouri* dans la révolte—*
the German Nazi soldiers they died in the revolt
206. M: *les soldats allemands* what did you say after that sorry?
the German soldiers

207. S: they died *ils a mouri*?*
208. M: uh right uh *mort* is the past participle
209. S: oh *mort*?
210. M: *mort* m-o-r-t right *mort*
211. S: m-o-r-t *mort* not m-o-u-r-i
212. M: right and it's conjugated with
213. S: (…)
214. M: *être* remember?
215. S: *il est mort ils sont morts*
he died they died
216. M: *ils sont morts*
they died
217. S: uh *ils sont morts dans son cette revolte*
uh they died in its this revolt

M initiates the intervention in line 206 by asking Sara to repeat what she said, which she does in both English and French, although she makes no change to the incorrect structure. Because the verb's past participle is quite irregular, M simply provides it, preferring to focus instead on the issue of the auxiliary, but Sara does not recognize the form. In response, it is M in this case who resorts to spelling the form in an attempt to facilitate Sara's comprehension. Sara repeats this spelling and then goes on to spell the incorrect past participle she had produced. Unlike in Jess's case, Sara does not need to actually write the form as spelling it is sufficient for her comprehension. In line 215, after M points out the correct auxiliary, Sara combines the elements, including the past participle *mort*, to produce the necessary PP construction. Then, a few moments later, Sara again uses the verb *mourir* as she tries to state that the central character did not die during the revolt:

218. S: oh yeah *il s'est échappé aussi* [to self] *s'est échappé* [aloud] he escapes
he escaped also escaped
219. okay *il s'est échappé aussi et uh … um il a il ne morte* pas il ne morte et*
he escaped also and uh … um he he doesn't die he doesn't die and
220. survives *ce révolte et*
survives this revolt and
221. M: right okay with the verb *mourir il ne mort pas* he doesn't die
222. S: *il n'a pas mort*?*
he didn't die?
223. M: *il n'est pas mort*
he didn't die
224. S: *il n'est pas mort il n'est mort il n'est pas mort*
he didn't die he didn't die he didn't die

In this instance, Sara initially leaves the verb in the present tense and M repeats and translates her utterance into English to point out the tense error. Sara responds by switching to the PP in line 222. Her use of mourir is more successful this time although not completely correct – she uses a form of avoir rather than être as the auxiliary verb. Importantly, however, the irregular past participle that she had

spelled with M's help was no longer a problem for her. The act of spelling the word was valuable for Sara because its more material form initially helped her comprehension and later her recall.

7.3.2 Extending Learning Beyond the Intervention

In addition to employing strategies to self-regulate during DA, learners also attempted to reconsider other features of the language in light of their new understanding of verbal aspect. For example, while interacting with Amanda during her initial DA narration, M decided to explore her comfort with the *plus-que-parfait*, or past perfective aspect. Just as the present perfective underscores the completed aspect of actions from the perspective of the present, the past perfective takes as its reference another point in the past. Use of the past perfective thus requires a shift in orientation from a present point of reference to one in the past. For example, in the English construction *She had studied French for three years before she visited Paris*, the visit to Paris is a past event that is preceded by the earlier event of studying French. Marking the verbs appropriately helps to establish this relationship between the two events.

In the exchange that follows, Amanda is explaining that the characters in *Nine Months* were angry when they arrived at their friend's home because they had not finished their argument. Amanda misses an appropriate opportunity to use the verb *finir* (to finish) in the past perfective, choosing the present perfective instead in line

225. A: *les deux se sont en colère*, parce qu'ils n'ont pas fini leur discu argument*
the two are angry because they didn't finish their discu argument
226. *et* uh
227. M: actually they hadn't finished their discussion right because it kind of
228. takes place before (…) so they arrived in the past but they hadn't finished
229. their discussion at an earlier time in the past
230. A: *ils ne finissions?* Or uh *finissent?*
they were finishing? Or uh finish?
231. M: actually it's more with the auxiliary verb that you see the change
232. A: oh *se (…) s'était? S'était*
233. M: almost almost right (…) except you're using the other verb the other
234. auxiliary
235. A: uh, right (…) (looks confused)
236. M: you were using *avoir* with uh uh *finir* right?
237. A: *oui uh ils n'avaient pas fini*
yes uh they hadn't finished
238. M: right exactly

M begins by pointing out that the discussion to which Amanda is referring preceded the characters' arrival. This does not provoke a response, and so after a slight pause

M becomes more explicit, actually providing the English past perfective structure "they hadn't finished" in line 227. Although M has not specifically named the *plus-que-parfait* as the form she should use, Amanda recognizes that her earlier construction *"ils n'ont pas fini"* does not convey the desired meaning. In line 229 she first switches to the PI and then to the present tense. In lines 231–236 M offers increasingly explicit guidance, first focusing her attention on the auxiliary and then guiding her to select the appropriate verb. Ultimately, it is Amanda and not M who produces the correct form in line 237.

Although Amanda required prompting to produce the correct form in her narrative, the interaction revealed that she did in fact have some understanding of how to form the *plus-que-parfait*. Once her attention was focused on the auxiliary verb, Amanda was able to use the appropriate morphological marking (line 231), and after she was prompted to switch from *être* to *avoir* she managed to combine the elements – the subject pronoun, the auxiliary, the past participle, and the negative – to produce the correct structure in line 237, *"ils n'avaient pas fini."* Thus, Amanda was able to use her knowledge of the *passé composé* and the *imparfait* to correctly arrive at the *plus-que-parfait* structure that she needed. However, we cannot claim that she had a full understanding of how to situate events using the past perfective; M did not pursue the matter to determine whether Amanda comprehended why the past perfective was appropriate here and there were no other instances of her producing such constructions on her own initiative. What Amanda seems to be extending here is her ability to form verbal constructions rather than her understanding of aspect. An extension of conceptual knowledge did occur with Sara during her DA narrative at the end of the program.

During this session, Sara recounted the car accident in *Nine Months* and at one point M interrupted to ask about her choice of aspect. In the exchange below, M asks Sara about her choice of the PP for the verb *parler* (to speak) in her description of what the characters Rebecca and Samuel were doing when they had their accident:

239. S: … *il a parlé de la situation* wait so they were speaking about the
he spoke about the situation
240. pregnancy is that what I said?
241. M: uh yeah
242. S: *ils* (…)
243. M: *ils parlaient*
they were speaking
244. S: (…) when something happened, you know I see *plus-que-parfait* being
245. used in this
246. M: *plus-que-parfait*?
247. S: because they were speaking about this when she said this, well I think
248. M: where would *plus-que-parfait* fit in? How's that?
249. S: before she said this this had happened
250. M: like you said—
251. S: they were talking about something when she said this or or before she said

252. this this had happened
253. M: oh, like they had had an accident?
254. S: they had had an accident before they had a conversation before they
255. discussed this but I think what they're talking about a certain situation
256. at that moment yeah it should be *imparfait* there as well
257. M: okay, because remember a lot of it has to do with your timeline and how
258. you're how you want to [talk about
259. S: see it]

When Sara hesitates to change her choice of the PP for the verb *parler,* M supplies the correct form of the PI in line 243. However, Sara does not accept this answer. In line 244, she is thinking her way through how she wants to portray the action in English, and arrives at the possibility of using the *plus-que-parfait*. In other words, she considers the possibility of altering the way in which she talked about the events in the story, and she is aware of the changes she would need to make to maintain the appropriate sequencing of events in the story. Her comments suggest that she has internalized to some degree how tense and aspect can be used to talk about events from various points of reference. This is especially clear in lines 247–252 as Sara considers, in English, different ways of presenting the events. Interestingly, she actually carries M along with her, as he had clearly not considered describing the events of the story in this way. While Sara ultimately decides that M's suggestion of the PI most appropriately fits how she wants to describe the action, her consideration of the past perfective as an alternative is quite revealing of her understanding of the past tense–aspect relationship. Her comprehension of aspect transcends the question of the *imparfait* or the *passé composé*. At this point, she is no longer searching for the "correct answer." Instead, she sees that events can be talked about in multiple ways, depending on both the point of reference one selects and the aspect of the event one wishes to emphasize.

A final illustration of learners moving beyond the study of specific structures involves Jess's attempt to use the passive voice during her first TR narrative. During her description of the clip from *The Pianist* Jess tried to explain that German soldiers were killed. Rather than placing in her construction an agent who commits the act of killing the soldiers, Jess tried to use the passive voice with the verb *être* (to be). In line 260 (below) Jess is trying to think through the construction and turns to M for help with the verb *tuer* (to kill):

260. J: [to self] *ils étaient* how do you say killed?
they were
261. M: killed? *Tué*
262. J: *tués par des coups de fusil aussi*
killed by gunshots also
263. M: using the *plus-que-parfait*?
264. J: uh what is it? *La voix passive*?
265. M: oh okay right you can use the *voix passive* but you're using which verb
266. tense though?

267. J: um *imparfait*
268. M: instead of *passé composé*
269. J: … yeah
270. M: to say that they were they were killed
271. J: uh huh
272. M: okay and how come?
273. J: I don't know actually should be saying *ils* […]… because I have to
274. say "was" otherwise they would be killing someone else
275. M: *ils ont tué* would be they killed but you want to say they were killed
276. J: right *par quelqu'un*
by someone
277. M: so you need another verb in there
278. J: *ils étaient tués ils avaient tué*
they were killed they had killed
279. M: well then using *plus-que-parfait* they had killed?
280. J: no how would I say they were killed? *Ils étaient tués*
281. M: *étaient*? So you're using *être* but *être* can be used in the *imparfait* or the
282. *passé composé* right so you could use the *passé composé*—
283. J: *ils ont été tués*
they were killed
284. M*: ils ont été tués* so it's the *passé composé* of *être* and *tué* as an adjective
they were killed
285. J: *oui ça marche*
yes that works
286. M: okay makes sense?
287. J: *oui, ils ont été tués par des coups des fusil*
yes, they were killed by gunshots

At first, M mistakenly assumes that Jess is attempting to produce the *plus-que-parfait*, or present perfective, as in "*ils avaient tué*" or "they had killed," but Jess is quick to assert that she is in fact using the passive voice. In lines 265–272 M provides a series of prompts, first checking which tense Jess has selected, then offering a translation of the phrase in English, and finally requesting an explanation of her choice. In lines 273 and 274, Jess reveals that her use of the PI was based on the fact that it is often translated into English using the verb "was," and Jess understands that using the "to be" verb is necessary in order to produce the passive voice. M responds by providing the active voice construction in French and English and the passive voice construction in French, attempting to draw Jess's attention to the use of the PP in the active voice. Jess tries again but reproduces the incorrect form in line 280. Finally, in lines 281–282, M resorts to pointing out that *être* can be used in either the PP or the PI, and this leads Jess to produce the correct form.

In this case, the learner's attempt to extend her understanding of tense and aspect to the passive voice is not successful. While Jess by this point had moved beyond rules of thumb in use of aspect, this less sophisticated understanding resurfaced

when she attempted to use the passive voice. Her account of the event in English did not match her insistence upon using the PI of *être*. Indeed, she needed to be explicitly reminded that the "to be" verb can be marked for either aspect before she was able to produce the correct structure. What we must not lose sight of, however, is that Jess opted for a more complex approach to relating the events from the video clip and in so doing pushed herself beyond her current level of development. Despite the difficulty she experienced and the amount of support she needed from M, Jess was clearly assuming a leading role in her own development. As we will see in the next section, the harmony of mediating moves and reciprocating behaviors can be difficult to sustain, and misinterpretations can result in lost opportunities to impact development.

7.4 Misdiagnosis and Inappropriate Mediation

It is no doubt clear the focus on development that defines DA also requires mediators to correctly interpret learners' behaviors and to provide support that enables continued collaboration in the ZPD. Conversely, misdiagnosis of a learner's struggle or intentions can lead to mediation that does not support development. Of course, some mistakes are inevitable, particularly in a highly dialogic approach to DA. In Chapter 8 I propose how the work of Vygotsky's colleague, Gal'perin, points the way toward a conceptualization of performance that can increase the systematicity of our interpretations of learner contributions during DA and minimize the risks of misdiagnoses. At this point, however, I simply wish to provide an illustration of a DA interaction that goes awry and fails to promote development.

As Sara was narrating the selection from *Candide* for the second TR task, she produced the erroneous construction "*il a disé*" or "he said," which was misinterpreted by M. The source of confusion stemmed from the pronunciation of the form *disé*. Sara was attempting to produce the verb *dire* (to say) in the PP, but forgot that the verb has an irregular past participle, *dit*. The form she produced, *disé*, was interpreted by M as a PI form of that verb, *disait*. The preferred pronunciation of the PI ending (*-ait*) might still differ from the past participle ending (*-é*) since the former would require an open rather than a closed vowel, but this distinction is not observed in all regions of the French-speaking world and certainly not by all learners of L2 French. At any rate, M interprets Sara's utterance as a mix of the PP and PI form of the verb, "*il a disait*. " It is only through interaction that it later becomes clear that the problem is not a mixing of two aspects (use of an auxiliary, *a*, as in the PP as well as a PI form, *disait*) but rather an inappropriately formed irregular past participle (*il a disé* rather than *il a dit*):

288. S: … *il a disé/disait* à Candide pour quitter la maison*
… he said/was saying to Candide to leave the house

289. M: *il a dit ou il disait?*
he said or he was saying
290. S: *il disait*
he was saying
291. M: *il disait?*
he was saying?

M mistakenly intervenes in line 289 to offer Sara a choice between the two forms, and at this point she selects the PI rather than the PP. Interestingly, Sara was correct in her initial preference for the PP, although she formed it incorrectly. In response to M's intervention, however, she switched to the PI, preserving the pronunciation she had used but changing the meaning.

Following the session, M returns to this problem:

292. M: okay and then there's the other one that I was helping you with the verb
293. *dire* right *a dit* versus *disait*
294. S: at what point?
295. M: you went with *disait* to say he was telling Candide at the end when he
296. chased him out of the castle right
297. S: *Il a dit il lui a dit pour quitte* le château*
he told he told him to leave the castle
298. M: okay so *passé composé*?
299. S: what did I say?
300. M: you were using *disait* in the narrative I was wondering if there was a
301. reason you wanted to go with *imparfait*

Here M offers both forms, reminds Sara which form she had selected, and then translates it to English. Upon hearing this, Sara reverts to her first choice, the PP, which more accurately conveyed the idea. In fact, in line 299 Sara asks M what she had said because she seems quite certain that the PP is the appropriate aspect. When questions her about her switch to the PI, she explains:

302. S: I probably wasn't sure how I wanted to frame the sentence but *il a*
303. *disé/disait** if it was over like finished saying get out of my house and if
304. you're saying get out my house and he threw him out
305. M: okay which one were you going for?
306. S: finishing the two at that moment he told him to get out of the house and he
307. threw him out
308. M: so *passé composé* and *passé composé*
309. S: *passé composé* and *passé composé*

It seems clear from Sara's explanation that, to her, the PP is the aspect that best expresses her portrayal of the action, and the explanation given in lines 302 and 304 supports her decision. The source of the problem was actually the past participle and not the choice of aspect. This was only brought out through sustained dialoguing with the learner, and so M's initial attempts to offer Sara mediation were not supportive of her development.

7.5 Conclusion

A major focus of this chapter has been to argue that dialogic interplay between mediator and learner may not always result in a sudden or dramatic shift to problem-free performance, but it does nevertheless impact learner development. We saw that in the case of Sara this meant that over time she became more successful at appropriately forming the *passé composé* and the *imparfait* during her narratives. With Amanda, cooperative dialoguing better positioned her to evaluate the semantic consequences of selecting one aspect or another to portray an event. As pointed out several times, important developmental gains such as these would have likely been missed in a non-dynamic procedure where the focus is narrowed to whether or not learners are able to function completely autonomously. Indeed, even a formative assessment carried out non-dynamically would have difficulty reaching the diagnoses described here because as soon as assessment and instruction are separated – even when they continue to exist in a cyclical relationship, as is the case with formative assessment – the goals of understanding development and promoting it become opposed. Framing an interaction as assessment traditionally entails suppressing the desire to help learners, as this would interfere with the goal of obtaining a clear picture of their capabilities.

Taken together, this chapter and the preceding one instantiate Vygotsky's model of a development-oriented pedagogy in which understanding learners' abilities and promoting them are the same activity. This new way of conceptualizing L2 classroom interactions also introduces a new set of ethical questions that educators must consider. For example, many in education would argue that fairness involves treating all learners as if they were the same. While this is intended to prevent discrimination and unfair practices, interactions in the ZPD reveal, as we have seen, that all learners are in fact not the same with regard to their development. Thus, fairness from a DA perspective might be redefined as providing all learners with whatever forms of mediation they need to develop. In Chapter 9 I will return to the matter of ethics in DA, particularly as it relates to social justice. However, more needs to be said first about how DA interactions can be interpreted and reported in a manner that systematically captures the dynamics of learner development. This is the topic of Chapter 8.

Chapter 8
Profiling L2 Development Through Dynamic Assessment

Abstract This chapter is concerned with the need to systematically document and track learner development through DA. In DA, performance is understood to be a joint activity involving mediators, learners, and tasks. This functional system is highly dynamic, with responsibilities and contributions shifting as learners develop and tasks are intentionally rendered more challenging in order to compel learners to continually stretch their abilities. In order to capture the complexities of development in DA interactions, the model of human action proposed by Vygotsky's colleague, Gal'perin, is applied. According to Gal'perin, performance is comprised of three stages: *orientation*, *execution*, and *control*. This model offers a means of further contextualizing mediator–learner cooperative dialoguing by referencing the problematic stage(s) of performance. Thus, an account of a DA session can include not only a description of the quality of mediation and reciprocity but also discussion of the specific problem that was the focus of interaction. Examples from L2 DA interactions serve to illustrate each of the stages of the model, as well as the model's usefulness in understanding problems that occur during DA.

Keywords Performance, orientation, execution, control, profiling development

8.1 Introduction

In the two preceding chapters I have provided examples in support of the view that the dialectic relationship between assessment and instruction represented by DA simultaneously illuminates and promotes L2 development. As should be clear, a consequence of this cooperative dialoguing is that one can no longer speak of performance as the provenance of the individual. Instead, performance is a joint activity involving mediators, learners, and tasks. This functional system, as we have seen, is highly dynamic, with responsibilities and contributions shifting as learners develop and tasks are intentionally rendered more challenging in order to compel learners to continually stretch their abilities. As a result, the need to systematically document and track learner development is greater than ever. After all, simply assigning learners a

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grade or percentage correct does not begin to capture the complexities of development in DA interactions.

In Chapter 5, I proposed a set of principles for L2 classroom-based DA that emphasize the need for flexible interaction in order to create ZPDs but that is also highly systematic. These included a willingness to adapt mediation to meet learners' needs as well as sensitivity toward learners' reciprocating behaviors during DA; intentional effort to render DA tasks increasingly complex to continually challenge learners; and an emphasis on presenting the object of study (in this case, a L2) in a manner that supports learners' development of psychological tools through the internalization of theoretical knowledge. The protocols we examined in Chapters 6 and 7 brought to light an additional feature of DA that can help us to understand the degree to which learners have internalized the concept under study – verbalization. Asking learners to explain the reasons behind their choices during DA was first proposed by Carlson and Weidl (1992) in their *Testing-the-Limits* approach, but according to these authors the technique actually comes from Vygotsky's student, Gal'perin, whose work also inspired CBI. For Gal'perin, verbalization represented a critical step towards internalization but it also afforded teachers important insights into the nature of the problems underlying poor performance (Gal'perin, 1967).

Gal'perin's research led him to propose a model of human action, or performance, comprised of three stages: *orientation*, *execution*, and *control*. Each of these is explained below. Their relevance to classroom-based L2 DA is that they offer a means of further contextualizing mediator–learner cooperative dialoguing by referencing the problematic stage(s) of performance. Thus, an account of a DA session can include not only a description of the quality of mediation and reciprocity but also discussion of the specific problem that was the focus of interaction. The importance of including such information in a profile of L2 development becomes clear when one considers that similar forms of mediation and reciprocity may occur in multiple DA sessions but they do not have the same signification if they are addressing different developmental problems. In the present chapter, I describe Gal'perin's model and illustrate how it can be used to provide a fine-grained analysis of development during DA.

8.2 Gal'perin's Stages of Performance

Gal'perin's interest in learner verbalizations as both a step toward internalization and a source of information about development is tied directly to his theory of the stages of human action. The L2 DA interactions discussed in Chapters 6 and 7 reveal that a myriad of difficulties can lead to poor performance, and that in some cases performance that appears unproblematic can mask confusions and misunderstandings. A major shortcoming of NDA is that its account of learners' abilities is based solely on a sampling of observable behavior while the processes underlying performance remain hidden. Insights such as these led Gal'perin to propose that

performance is comprised of more than carrying out tasks. In addition to this *execution* stage of action, Gal'perin argued that individuals first *orient* to the task, which involves devising a plan for successful completion of the task and taking account of necessary resources (Talyzina, 1981, p. 62). Leont'ev (1981, p. 43) describes the orientation stage as the basis of action, noting that it involves the ability to systematically analyze the demands of a given task. Following Gal'perin, he observes that at earlier stages of development this may entail referencing a model of successful performance but at later stages of development the process of orientation has been internalized and is carried out intramentally. Of course, through interaction this process may be re-externalized and targeted for intervention if necessary.

Leont'ev (1981) continues that Gal'perin's second stage of action, execution, is concerned with external acts that are transformative in nature (p. 43). Importantly, transformations may be either material or ideal. In the context of education, for example, learners may require physical objects, including charts, diagrams, and tables but also models that can be manipulated, to mediate their functioning. Again, as learners develop they will rely less on these artifacts as they execute performance.

Successfully completing a task however does not necessarily indicate full development. For instance, individuals may succeed by applying a rule or principle that works on some occasions but not others, or they may simply guess the solution to a problem. For this reason, learners' ability to evaluate the appropriateness of their actions and to make necessary revisions is a crucial part of performance. This stage, which Gal'perin refers to as *control*, is not only overlooked in many forms of NDA but it is sometimes not permitted, either because answers are considered final and cannot be changed or because time constraints deter learners from reflecting on their work. Nevertheless, a learner who completes a task successfully and is able to explain the reasons behind his choices is clearly at a different level of development from one who achieves a correct result but does not know it or is uncertain.

To show how Gal'perin's model may be used to help us refine our understanding of L2 performance as it unfolds during DA, we will examine protocols where problems occur at each of Gal'perin's three stages of performance. One of these protocols involves Sara's use of the verb *savoir* and will be familiar to the reader from the preceding chapter. I will not repeat the analysis presented earlier but will instead focus my remarks on how this mediator–learner interaction can be further illuminated by framing it according to Gal'perin's model. Following these examples, I propose a template for profiling L2 development in DA, which incorporates Gal'perin's stages of action as well as the DA principles described in Chapter 5. I then present DA interactions involving Nancy and Amanda to illustrate how profiles of development may be generated.

8.2.1 Orientation Stage of L2 Performance

In what follows, Elaine is narrating a scene from *Nine Months* in which the character Sean explains to Samuel why he and his girlfriend, Christine, broke up:

1. E: … *Samuel a demandé pourquoi est-ce que Christine n'est pas ici et Sean*
   … Samuel asked why Christine isn't here and Sean
2. *a dit qu'elle est partie parce qu'elle a voulu un bébé et il n'ont pas il n'a*
   said that she left because she didn't want a baby and he didn't he
3. *pas voulu bébé qu'il n'est pas prêt à être père un père …*
   didn't want a baby that he isn't ready to be a father a father …

Upon completion of her narrative, M prompts Elaine to reflect on her choice of verbal aspect for various parts of the story, including her portrayal of Sean and Christine's relationship. For instance, in lines 2 and 3 above Elaine selected the *passé composé* to use with the verb *vouloir* (to want). Using present perfective (PP) rather than imperfective (PI) to frame the characters' desire to have children or not is certainly possible, but M's questioning is aimed at uncovering Elaine's sensitivity to how both aspects affect meaning. During their discussion, Elaine begins to rethink her choice of the PP:

4. E: maybe I should have used the imperfect because he still doesn't
5. M: well I was just curious I was just wondering what made you opt for
6. *passé composé* there (…) because if—
7. E: do you want me to say it in English? Because I guess if she wanted a
8. baby and now she's gone that's kind of in the past almost? They're
9. both in the past but she had wanted one now she's gone but he still doesn't
10. want one so that would probably be imperfect
11. M: okay so—
12. E: if I was writing it I'd probably make a change

Elaine's verbalization of her reasoning reveals that she only has a partial understanding of verbal aspect. Her remark that Sean still does not want to have children suggests that she realizes that the *passé composé-imparfait* distinction has something to do with the completion of events. However, for Elaine, whether events are completed seems to be linked to the presence or absence of those involved. The fact that Christine is not present during Sean and Samuel's conversation compels Elaine to select the PP to express that character's desire to have children. Similarly, because Sean is present his aversion to parenthood is continuous and therefore demands the PI.

The source of Elaine's difficulty is an inadequate conceptual understanding of verbal aspect that does not allow her to properly orient to the task. It is worth noting that her execution of the task was unproblematic. In most forms of NDA, which consider only this stage of performance, one would erroneously conclude that Elaine's understanding of the *passé composé-imparfait* distinction was more developed than was in fact the case. That is, her overt observable behavior belied an underlying difficulty, which became apparent during mediator–learner dialoguing. However, it was neither the quality of mediation she required to carry out the task nor her level of reciprocity that revealed the source of the problem. An accurate diagnosis was reached only after Elaine had finished her narrative and verbalized her reflections, which enabled the mediator to understand the basis of her orientation to the task. I now present an example of a problem at the execution stage of performance.

8.2.2 Execution Stage of L2 Performance

The example from Chapter 7 involving Sara's use of the verb *savoir* (to know) is a case in which the learner has an appropriate plan but is unable to execute it without mediator support. At first, Sara produces a present tense construction in French, *elle ne sait pas* (she does not know), and follows it by clarifying her intended meaning in English, "she did not know," in the same line:

13. S: *Rebecca a dit que elle ne sss (…) sa, elle ne sait pas* she did not know
    Rebecca said that she doesn't (…) she doesn't know
14. *elle ne sait pas pourquoi*
    she does not know why
15. M: Well actually *elle ne sait pas* is present tense
16. S: it's present tense which is wrong
17. M: because you said she did not know so that would be past tense
18. S: the past tense *elle ne su pas** that's wrong (…)
19. M: were you looking for *imparfait* or *passé composé*?
20. S: (…) it's *imparfait*
21. M: okay so you would use the form of *savoir*—
22. S: *elle ne savait pas*
    she didn't know
23. M: *voilà*
24. S: I forgot it's *savoir* …

Sara's statements in lines 16 and 20 indicate her intention to use the PI to describe Rebecca's state of mind and her awareness that this is not matched by her utterance in French. Her remark that she had forgotten the infinitival form of the verb suggests that it was this single lexical item that led to the problem executing the plan. Thus, neither Sara nor Elaine were able to perform independently, but the causes of their problems were different. Whereas Elaine did not have a proper orienting basis to the task because she did not fully understand the concept of aspect, Sara understood the implications for meaning of selecting one aspect over the other but she needed specific linguistic support to carry out her planned performance. In the next example, Jess is able to both orient and execute performance but requires mediator support to evaluate its appropriateness.

8.2.3 Control Stage of L2 Performance

In the excerpt below, Jess recounts the clip from *Nine Months* in which Samuel and Rebecca argue about her prengnacy and Rebecca comments that he could be more positive about the situation:

25. J: … *Elle a dit je je divine que tu ne* wait *que tu ne veux pas le*
    … She said I I guess that you wait that you do not want the

26. *bébé* (…) okay *et elle lui a demandé qu'il était* qu'il être* plus positif?*
    baby and she asked him that he was uh that he to be more positive?
27. *Est-ce que ça marche?*
    does that work?
28. M: uh *elle lui a demandé*?
    she asked him?
29. J: *elle lui a demandé s'il peut* wait *s'il pourrait pouvait être plus positif*
    she asked him if he can wait if he would be able could be more positive
30. *pouvait être*? Uh (…)
    could be? Uh (…)
31. M: okay?
32. J: okay, um *en réponse il* …
    in response he …

As Jess struggles to describe the scene, she begins to use a direct quote from the dialogue but then tells herself in English to stop ("wait") and seems to search for the correct verb form. Once Jess finds the form she needs, she continues with the narration but then shifts from directly quoting Rebecca to using indirect speech, a more complex way of reporting dialogue. One of the reasons this is more complex is that it requires shifting verbs from the present tense to the past. Jess expresses that she is not certain her choices are appropriate and she asks the mediator to evaluate what she has said. The mediator does not answer her question. Instead, because of the uncertainty indicated by Jess's alternation between the past (*était*) and the infinitive (*être*), he prompts her to repeat her utterance. Jess reformulates, this time substituting the verb *pouvoir* (to be able to). She again stops herself ("wait") and begins to think through how to produce an even more sophisticated construction using a PI form as a conditional. She succeeds but once again turns to the mediator to evaluate her performance. The mediator accepts this construction and Jess continues her narrative. In this interaction, we see Jess's struggle to abandon a simple way of reporting dialogue in favor of a more sophisticated form of expression. Although she initiates this shift on her own, she still requires the mediator to play an evaluative role.

8.3 Profiling Learner Development

It should be evident from the preceding examples that in addition to considering the quality of mediation and reciprocity during DA, learner development comes clearly into focus only when this information is situated according to the stage at which performance breaks down. Profiling development is definitely more complex than simply assigning grades on the basis of whether learners respond correctly when tested. Nevertheless, the challenge of capturing development in DA does not obviate classroom teachers from the responsibility of reporting to parents, administrators, and to the learners themselves. In addition, the dialectic relationship between instruction and assessment posited by DA requires that learners' abilities be tracked in an accurate and systematic manner throughout their development. As we have

seen, mediating development in the ZPD is only possible when learners' changing needs and capabilities are taken into account.

Profiling learner development may be imperative, but it is also quite feasible. Indeed, our analyses thus far of the French L2 DA interactions have laid the foundation for capturing development. This foundation is comprised of four pillars. The first compels us to consider the source of problems. Are learners appropriately oriented to the task? Can they devise a plan that will enable them to succeed? Do they understand the resources they will need to execute the plan? Do difficulties arise as they attempt to carry out their plan? Are they able to recognize when their outcome is not successful and can they revise their plan? The second pillar concerns our collaboration with learners to overcome these problems once they have been identified. How explicit must the mediation be in order to be useful to learners? Directly related to this is learner reciprocity, which forms the third pillar in our foundation. To what degree are learners taking responsibility for completing the task? Are learners aware of the support they need and do they ask for it? How do learners respond when mediation is offered? Do they act on it or refuse to accept it? The final support in our foundation is transcendence. How successfully can learners recontextualize their abilities as they encounter new problems? What kinds of problems (re-) emerge? What forms of mediation do they require?

Figure 8.1 summarizes this approach to profiling learner development in DA. The vertical and horizontal axes represent, respectively, mediators' and learners'

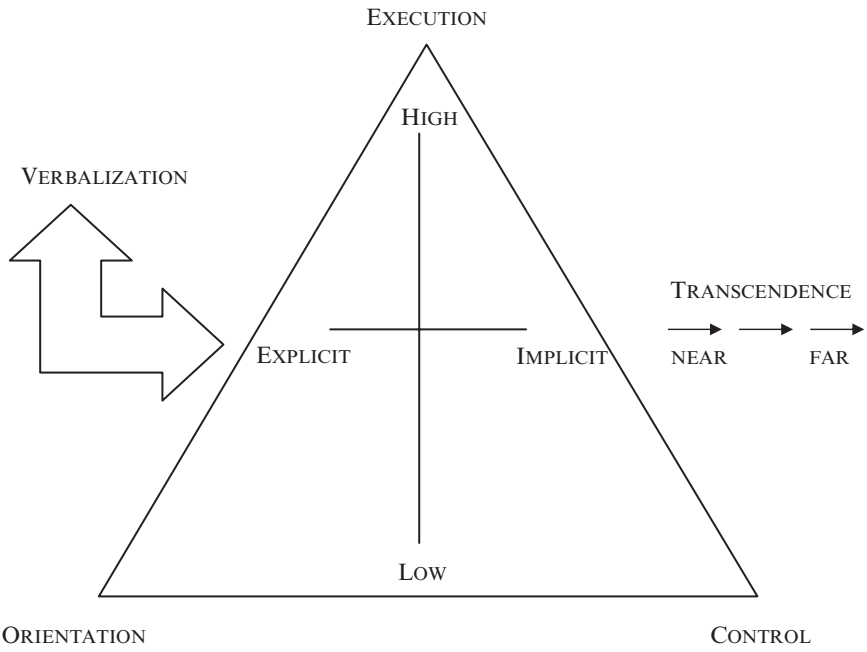


Fig. 8.1 Interpreting learner development in Dynamic Assessment

contributions to DA. Mediating moves vary in degree of explicitness while learners' reciprocating behaviors can be described as low-level or high-level, depending upon the extent to which learners assume responsibility for performance. In this regard, one can distinguish learners who require substantial support and improve very little; individuals who improve dramatically with minimal mediator support; learners who actively request, negotiate, or refuse mediation, as well as many other mediator–learner dynamics.

The signification of mediating moves and reciprocating behaviors can only be understood in the context of a given interaction, and specifically in relation to the orientation, execution, and evaluation stages of performance, which form the three points of the triangle that circumscribes the mediating and reciprocating axes. For instance, a learner who can correctly orient to and carry out performance but who requires extensive mediation to evaluate its appropriateness is closer to full independent performance than a learner who is unable to develop an adequate plan without mediator support. In both cases learners may be offered very explicit forms of mediation, but the problems they are struggling to overcome are qualitatively different, and so too are their respective levels of development.

Verbalization is positioned outside the triangle because it is simultaneously a source of insight into the causes of poor performance as well as a potential opportunity for self-mediation as learners may talk their way through difficulties (see discussion in Chapter 7). The bidirectional arrow is intended to represent this dual function of verbalization. The final indicator of development, transcendence, is also located outside the triangle because it in fact represents the movement of the entire system as learners attempt to recontextualize their abilities. This process invariably includes further struggle and cooperative dialoguing. That is, transcendence highlights the ongoing nature of development as learners engage in tasks that vary to differing degrees from those they have already mastered. In this regard it is useful to recall the distinction made in the *Graduated Prompt* approach between tasks and problems that are *near* to and *far* from those learners can perform independently.

Obviously, this model is not intended as a rubric for assigning grades to learners. The precise manner in which classroom teachers decide to report their collaborations with learners and any resulting development will no doubt be determined by a number of factors including teachers' and learners' goals, external accountability pressures, school or institutional culture, and expectations of students, parents, and administrators. Moreover, this model should not be taken as the best or only approach to conceptualizing and discussing learner development in a DA program. It does nonetheless offer a systematic means of capturing important facets of learner development as these become manifest in a given DA interaction but also as changes emerge over time. For example, classroom practitioners may be tempted to simply consider whether learners develop over time the abilities needed to complete a given task. While this is no doubt one possible outcome of DA it is far from the full picture of development. One might also find that within a defined period of time, say between the start and end of a semester, learners' abilities may not fully develop but this by no means indicates that changes have not occurred. Individuals may be able to do more than before with the same forms of mediation, they may

reciprocate in more agentive ways, they may orient to tasks better than before but still be unable to execute them, or any number of other possibilities. Because future development, as Vygotsky argued, cannot be predicted solely on the basis of past development, teachers must be prepared to engage with learners as new problems arise and old ones reemerge, and this requires full awareness of the complexities of development. The following two DA protocols illustrate how this model may be applied to mediator–learner L2 interactions.

8.3.1 Case I

In the exchange below, Nancy is narrating the scene from *Nine Months* that Elaine described earlier. Initially, she attempts to relate that Sean and Christine are no longer together but encounters a number of problems expressing this idea in French:

33. N: … *Sean (…) a marché avec Sam pour parler de cette situation et il a*
    … Sean (…) walked with Sam to talk about this situation and he
34. *dit que Christine que Christine et il ne sont pas uh* [together
    said that Christine that Christine and he are not uh [together
35. M: *il a*?]
    he?]
36. N: I want to say that he and Christine aren't together anymore
37. M: okay
38. N: so uh so *Sean a dit que il que Christine et il ne sont pas* [together
    Sean said that he that Christine and he are not [together
39. M: one thing] you could say is that she left him
40. N: she left him ah (…) I'm trying to think of how you would say she left
41. him uh (…) *elle est partie de sa vie* (laughs)
    she departed his life
42. M: (?)
43. N: I don't know how you say she left him
44. M: you can use the verb *quitter*
45. N: oh *quitter*! so *elle l'a elle l'a quitté*?
    oh to leave! so she him she left him?
46. M: *voilà*

In line 34 Nancy slips from the past into the present, selects an inappropriate pronoun (*il*), and struggles to find an equivalent of the English "together." In fact, she switches from French to English to produce the word "together" perhaps in an effort to elicit support from M. M interrupts in line 35 to prompt her to repeat the part of her utterance where she reports Sean's speech. This form of mediation is quite implicit, as M does not actually indicate to the learner that errors have been made. Nancy is unable to correct her performance, but her reciprocating move – explaining her intended meaning to M in English – indicates that she is aware that

her performance, as executed, does not correspond to the plan she has developed. In essence, the learner has stepped back from the execution stage of performance to share her plan with M. In line 38, after M accepts her plan, Nancy opts to reattempt the construction rather than seeking any specific forms of support. Once again, she produces the same errors.

At this point, M initiates a shift from the execution to orientation stage as he suggests, in English, a new plan: rephrasing the idea that the characters are no longer together by simply stating that Christine left Sean. M could have continued to mediate Nancy by helping her correct and complete her original formulation that the characters were no longer together. For example, he could have reminded her that she was narrating past events, called her attention to her choice of pronoun, and even provided the necessary lexical item *ensemble* (together). Her plan, as expressed in English, was appropriate, but she did not have all the linguistic resources and did not have full control over the relevant grammatical features. By suggesting a new plan, M sent the interaction off in a new direction.

It is worth noting that Nancy is receptive to M's suggestion that she reframe the narrative to state that Christine left Sean. Her willingness to consider this alternative way of looking at the events in the story allows her to ultimately succeed in narrating the scene and, importantly, she does so without reproducing her original grammatical errors (i.e., problems with verb tense and object pronouns). In other words, M did not have to address each of the problematic aspects of performance, although his support was needed as Nancy executed the second plan. For example, Nancy's laughter in line 41 suggests she realizes that her phrasing is somewhat awkward, and she admits to M that she is unable to find a better way to express the idea of one character leaving another. M offers a linguistic resource, the lexical item *quitter*, one of three verbs in French that might be translated as "to leave." This is adequate for Nancy to successfully execute the task – she appears to recognize that this verb can be used to express the idea of leaving someone and she formulates an appropriate past-tense construction with the correct object pronoun (*le*). However, she frames her statement as a question, suggesting that she needs M to play an evaluative role.

Complex interactions such as these are characteristic of dialogic collaboration in DA, and generating a profile to capture the development that unfolds is no easy task. An important point to keep in mind is that Nancy is quite possibly developing many language abilities simultaneously (e.g., lexical, grammatical, pragmatic, and phonological) during her interactions with M. In the L2 classroom, however, we seldom attempt to profile all facets of development at the same time but instead target certain features, often ones tied to a course curriculum, textbook, or syllabus. In the context of this French L2 DA program, the primary object of intervention was learners' control over verbal tense and aspect.

Focusing our profile in this way, we can conclude that Nancy continues to struggle to maintain the appropriate tense during narration. This was especially evident when her attention shifted to expressing an idea for which she did not have adequate lexical resources. Her execution of the task included several errors and these were not corrected when implicit mediation was offered, although it is quite

possible that she was aware of at least some of the mistakes. In fact, her openness to replanning the performance indicates that she understood her original execution to be problematic. Her execution of this second plan differed from her earlier attempts because once she was offered the correct verb Nancy was able to continue her narration using an appropriate tense. Based on this episode, Nancy seems to have partial control of verbal tense. At best, she requires mediation to evaluate the appropriateness of her performance. When she encounters other problems, such as lexical difficulties, her control of tense weakens and she needs relatively explicit mediation to continue.

Of course, our diagnosis would be further refined by taking into account the rest of the DA session and not only this brief exchange. The resulting DA profile would include other instances when mediator and learner jointly worked out problems, and would consequently underscore any development that occurred during that session. In addition, comparing descriptions of multiple sessions with the same learners can help teachers track development over time. It is should also be noted that, as with all forms of assessment, including psychometric ones, this approach to DA involves making a reasoned interpretation of learner development. Certainly, other perspectives are possible and would no doubt highlight additional features of performance. The example above is intended only to illustrate how each of the indicators of development described earlier in this chapter, when taken together, can yield a principled and systematic interpretation of mediator–learner dialoguing. I now turn to a profile of development involving Amanda.

8.3.2 Case II

Amanda's performance of the same task led to a very different developmental profile. In the following interaction, Amanda is attempting to convey Samuel's surprise at hearing the news of Rebecca's pregnancy. She falters while producing a PP form of the verb *croire* (to believe), which has an irregular past participle:

47. A: … *la contrôle de naissance n'est pas absolument effective et Samuel ne*
    …birth control is not completely effective and Samuel
48. *n'a pas croit cru?**
    didn't believes believe?
49. M: uh which tense?
50. A: *passé composé*
51. M: oh *croire* has *cru* for a past participle
52. A: uh
53. M: so what was it *il*?
54. A: *il ne lui ne lui a pas cru*?*
    he didn't it didn't believe it?
55. M: except *lui* is an indirect object right?
56. A: yeah so it would be *il ne l'a pas cru? et Rebecca* …
    he didn't believe it? and Rebecca …

A moment later during this session, M prompts Amanda to verbalize her reasons for framing the event in this manner. Her explanation clarifies that her decision to use the PP was indeed motivated by her understanding of how the *passé composé* and *imparfait* express different meanings:

57. A: because it was right then that it happened he didn't believe what she
58. had just said and she has that reaction it was in that very specific
59. timeframe that they were talking about being pregnant birth control and he
60. didn't believe this (…)

In this instance, Amanda successfully arrives at the necessary form, *cru*, before turning to M. Her production of alternate forms in line 48 and her questioning intonation suggest that she needs M's support to control the performance. While the PP is certainly an acceptable way to describe Samuel's reaction, M first seeks confirmation from the learner that this is her intended meaning. Amanda is quite certain of her choice and so M affirms that the past participle *cru* is correct. However, Amanda realizes that this is not sufficient for her to continue her narration, and her hesitation in line 52 prompts M to try to start her off.

The source of Amanda's hesitation becomes clear in line 54: she is no longer concerned with the past participle but has instead shifted her focus to the selection and placement of an object pronoun. Her original construction in lines 47–48 did not include an object pronoun, but as Amanda reentered the narrative after settling the question of the irregular past participle she realized that this would be appropriate. As this is a negative past tense construction Amanda has several particles to contend with, and this is sufficiently difficult that she casts her utterance as a question to elicit further help from M. In line 55, M accepts her word order but points out the problem in the kind of object pronoun she selected. His observation that *lui* is an indirect object pronoun is explicit enough for Amanda to reformulate the utterance correctly in line 56.

Applying our framework for profiling development, we see that Amanda is highly agentive throughout this interaction. At the outset she composes a plan for narrating the event and makes appropriate use of the linguistic resources necessary for expressing her intended meaning, in this case the *passé composé* and *imparfait*. She vacillates between alternate forms of the verb *croire* during her execution of performance and requires mediation as she evaluates the construction. Amanda is aware that she needs mediator support with this stage of performance and so she, rather than M, initiates the interaction when she frames her utterance as a question. The control function does not, however, reside fully with M, for after the matter of the past participle has been resolved Amanda determines that her construction could be improved by the addition of an object pronoun.

It is clear that Amanda is assuming the lion's share of the responsibility for performance, and so we can characterize her level of reciprocity as quite high. In fact, her interactions with M are similar to how she might use an artifact such as a dictionary or grammar reference. She is in control of the activity and sees M as a resource that can facilitate her engagement. M's primary contributions are focused on the control stage of performance, although even here he shares responsibility

with the learner. All of this suggests that Amanda is very close to achieving full control of verbal aspect.

8.4 Conclusion

In this chapter I proposed a framework for interpreting the often complex – and always dynamic – interactions that characterize classroom-based DA. To be sure, capturing learner development as it emerges in the moment-to-moment negotiations between mediator and learner is a difficult task but a manageable one when it is approached from a position that is grounded in a theoretical understanding of development. Indeed, just as I argued in Chapter 4 that formative assessments often fail to promote learners' abilities because teachers' moves are not guided by a theory of development, so too can we conclude that the impact of DA on learner development cannot be appreciated without referencing theoretical constructs such as mediation, reciprocity, and transcendence as well as a model of human action. In other words, because DA is rooted in a coherent theory of mind, it positions us to both understand and promote learner development, and of course from this perspective these are not separate activities but are fully integrated.

DA profiles involve a process of constructing arguments about learner development based on available evidence, a process common to all forms of assessment. However, the information about the dynamics of learner development that emerge from a systematic interpretation of mediator–learner dialoguing surpasses simply noting that at one point in time a learner failed to reach a criterion but later succeeded (or not). Instead, the DA profile proposed here documents learners' struggles toward greater autonomy and emphasizes the nature of the challenges that arise and the ways in which these are met. For the classroom practitioner, DA profiles may be used as the basis for reporting learning in more conventional ways, such as assigning letter grades, but it must be emphasized that the value of the profiles is that they go well beyond listing individuals according to their relative success or noting which learners were successful and which were not. DA profiles are fundamentally about recording how all learners can succeed.

Chapter 9
Constructing a Future for L2 Dynamic Assessment

Abstract The focus of this chapter is to alert the reader to ongoing strands of DA research that are relevant to the L2 domain and to applied linguistics more generally. In particular, four issues are discussed below. The first two – computer-administered DA and peer-to-peer mediation – have direct implications for L2 teaching, assessment, and learning. The third proposed topic is less pedagogical and concerns a broader conceptualization of applied linguistics that includes the study of elderly populations. Here, DA interventions focus less on cognitive development – although this is certainly a possible outcome – and more on forestalling cognitive decline, particularly among individuals with Alzheimer's and other forms of dementia. The chapter also includes a reflection on the social agenda of DA.

Keywords Computer-administered DA, peer-to-peer mediation, Alzheimer's disease, social justice

9.1 Introduction

Throughout this book I have maintained that Dynamic Assessment holds great promise for classroom L2 teachers and learners as well as for researchers in the areas of L2 pedagogy, SLA, and L2 assessment. And yet, as explained in Chapter 2, the history of DA can be traced back nearly eighty years and in all that time it has not sparked any widespread pedagogical revolutions, even in the domain of special education where so much DA work has been conducted. There are a number of possible explanations of why DA continues to reside outside mainstream research and practice. For instance, one could argue that DA's existence at the margins is not unlike the status of Vygotskian theory itself, which was banned in the Soviet Union following Vygotsky's death, discovered in the West decades later, and is only now slowly gaining acceptance. If this is the case, and DA one day becomes a more central pedagogical approach, then this is all the more reason to begin exploring its applications to the L2 domain immediately. As Frank Lloyd Wright famously said, "The future is now."

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Another reason DA is not more popular, suggested by Sternberg and Grigorenko (2002) and discussed in Chapter 1, is that DA is simply too different from other approaches to assessment. It shares neither their goals, theoretical underpinnings, methods, nor conventions for reporting results, and so those working in other traditions have difficulty valuing DA or even understanding it. Of course, this can hardly be an acceptable reason to dismiss an innovation. Indeed, it is by virtue of their difference from more familiar approaches that innovations stand to contribute to our understanding of particular problems. Considering new perspectives and revisiting our basic assumptions is how fields of inquiry advance. A third and more disturbing explanation was put forth by Van Lier (2006) in his analysis of why "alternative" approaches in education, such as those associated with Dewey and Montessori, never become mainstream despite proven results: they work, and so large-scale implementation would pose a threat to societal status quos that are predicated on some individuals succeeding but not all. To be sure, the goal of DA is precisely to undo "normal distributions" and to help all individuals realize their potentials. This, one could argue, is the purpose of education, and so professional ethics compel us to actively pursue all proposals that might help us achieve it.

My goal in this book has been to demonstrate the insights into learners' abilities that are gained only through dialogic interaction and to argue that these same interactions result in further development. I have focused my remarks primarily on the L2 classroom as this site seems particularly well suited to engaging individuals in the kinds of activities that will help them to gain greater control over the language. The examples from the French L2 DA program we considered demonstrate some of the relative advantages of a dynamic approach to L2 pedagogical interactions, including the correction of over- and underestimates of learners' abilities, the identification of problem areas outside the focus of a particular task or interaction, and the possibility of supporting learners' efforts to stretch beyond their current capabilities to engage in more complex tasks and to use the language in more sophisticated ways. Clearly, this does not exhaust the potential contributions of DA to L2 development, and in fact the French L2 DA program is only one implementation of DA principles in the L2 classroom. Future work will no doubt produce refinements and extensions of the model proposed here as well as additional applications.

The focus of the present chapter is to alert the reader to ongoing strands of DA research that are relevant to the L2 domain and to applied linguistics more generally. In particular, four issues are discussed below. The first two – computer-administered DA and peer-to-peer mediation – have direct implications for L2 teaching, assessment, and learning. The third proposed topic is less pedagogical and concerns a broader conceptualization of applied linguistics that includes the study of elderly populations. Here, DA interventions focus less on cognitive development – although this is certainly a possible outcome – and more on forestalling cognitive decline, particularly among individuals with Alzheimer's and other forms of dementia. The chapter concludes with a reflection on the social agenda of DA.

9.2 Computerized Dynamic Assessment

As mentioned in Chapter 5, computer-based tests are increasingly common and DA researchers are beginning to explore the possibility of electronically delivering mediation. To be sure, such mediation would be limited in the degree to which it could be attuned to learners' needs. In this way, computerized DA (C-DA) faces the same challenge as all interventionist approaches: one cannot know how learners would respond if other forms of mediation were offered. Nevertheless, C-DA has several distinct advantages, including the following: it can be simultaneously administered to large numbers of learners; individuals may be re-assessed as frequently as needed; and reports of learners' performances are automatically generated. It is easy to imagine assessment contexts in which these advantages outweigh the constraints on mediation (e.g., screening of applicants for admission and placement purposes).

To date, only a few applications of C-DA have been reported in the literature. Tzuriel and Shamir (2002) developed a C-DA procedure for the assessment of kindergarten children's seriational thinking abilities – a domain, they note, that has been linked to subsequent performance in mathematics (p. 23). In their approach, children are presented with a series of shapes and asked to differentiate them according to one of three dimensions: size, color, and darkness. With each task, new figures are provided and the criterion for sorting them is changed. The mediational component of the procedure combines interactionist and interventionist DA through "human–computer collaboration" – the computer supplies a series of hints arranged in order of increasing explicitness while the examiner is also free to interact with the children, providing additional help that is more attuned to their needs (p. 30). Thus, the children receive immediate feedback from animated characters who guide them through the assessment, and the human examiner may interpret this for the children and even address other aspects of their performance that go beyond the computer program (p. 24).

At present, the researchers have only reported the results of one study using this assessment. Tzuriel and Shamir (2002) contrast the gains made by learners who had both computerized and human mediation available to them with learners who received only human support. Perhaps not surprisingly, they found that the learners provided with both forms of mediation benefited the most. The authors concede that these greater gains may be attributable to the quantity of mediation they received (p. 30). Unfortunately, they do not report the kinds of mediation the examiner provided to the two groups of learners, particularly whether the quality of human mediation varied when the computer was available. It is also important to note that the authors did not include in their design a group of learners who were given only computerized mediation, and so the effectiveness of the program without "human–computer collaboration" is not known.

In the domain of language learning, Jacobs (1998, 2001) reports on the use of a program known as KIDTALK (Kidtalk Interactive Dynamic Test of Aptitude for Language Knowledge) in which pre-school and school-age children are led through

a series of computer-based activities designed to assess their language aptitude. The program presents children with samples from an invented language based on Swahili that the researchers refer to as "Kidtalk." These presentations are conducted through videos involving puppets who introduce vocabulary and model morphological rules. After the initial training phase, the children are administered the computerized KIDTALK assessment, which requires them to use their knowledge of the invented language to answer a series of questions. Jacobs (2001) reports that earlier, non-dynamic versions of this assessment have been revised according to DA principles. She argues that the procedure is now dynamic because, when children miss a question, the computer automatically takes them back to the relevant segment of the training video and then gives them an opportunity to attempt the question again. If the child is still unable to respond correctly, this process is repeated. If on the third attempt the child still cannot answer the question correctly, the computer skips to the next item on the test. Upon completion of the assessment, the computer generates two reports for each child. The first report assigns one point to every question the child answered correctly (regardless of how many tries the child made) while the second report provides a more detailed breakdown of the number of attempts the child took for each item (Jacobs 2001, p. 224).

Guthke and his colleagues have developed computerized versions of the *Leipzig Lerntest* (LLT) that function in a manner similar to KIDTALK. Guthke and Beckman (2000) explain that in its most recent form, the computerized LLT asks learners to respond to two items for each problem type (two items are given instead of one to minimize the possibility that the learner guessed correctly). If both items are answered correctly, the program skips to the next problem type. If, however, learners respond incorrectly to one or both of the items, a series of training tasks appear that are designed to help learners master the various components that comprise the complex test items. Interestingly, if learners succeed on earlier test items but fail on later ones, the program immediately takes them to the directly preceding set of training tasks. In some sense, this is analogous to computer-adaptive testing, in which testing programs sequence questions according to a hierarchy of difficulty levels and gauge learners' abilities according to the point at which their performance breaks down. However, unlike in computer adaptive tests, the computerized LLT not only pinpoints where in the sequence of questions learners experience problems, it also provides assistance so that they might learn from the procedure and move on to more difficult items.

Unlike KIDTALK, the computer-based LLT individualizes, to some extent, the mediation it offers by providing multiple routes that learners can follow through the test depending on the nature of the problems they experience. The researchers have identified various dimensions for the test items so that learners' errors indicate which dimension they did not understand, and the training tasks then focus on that dimension. In addition, because all forms of mediation are standardized, Guthke and his colleagues argue that their procedure represents a compromise between clinical and psychometric concerns by sensitizing mediation to the learners' needs while at the same time not sacrificing the test's statistical properties (Guthke and Beckman, 2000, p. 42). Guthke has not reported any research that

compares the computerized LLT with the paper-based, human-mediated version. As with non-computerized DA, the central issue in these procedures is the extent to which the assessment goals and the available resources permit individualized mediation. In some contexts, the compromise Guthke describes will no doubt be appropriate. In others, the human-computer collaborative format described by Tzuriel and Shamir will certainly be attractive because it further increases the possibility of working within individuals' ZPDs. Language testing researchers will undoubtedly wish to explore both these models.

9.3 Dynamic Assessment and Peer-to-peer Mediation

Kaufman and Burden (2004, p. 108) observe that research on DA and the ZPD has traditionally focused on expert–novice relations and has neglected peer–peer interactions as a possible source of mediation.[1] One might question how well a tutor lacking expert knowledge could appropriately mediate another learner. However, a number of studies suggest that peers can serve as effective mediators. For example, although not specifically framed as DA, the ongoing research of Swain and her colleagues (Swain and Lapkin, 1998, 2000; Swain 2001) into L2 development highlights the substantial role of interaction between learners. Working with French L2 learners in immersion settings in Canada, these researchers observed pairs of learners engaged in pedagogical tasks. Their work shows that psychological processes become visible in the dialogue that occurs between learners as they mediate each other through tasks. For instance, Swain (2001, pp. 288–289) points out that even in brief exchanges between students struggling with the production of a linguistic form, one can observe various mental strategies (e.g., inferencing, clarifying, and linking to previous knowledge) that they use to mediate themselves and one another. In addition, Swain provides evidence that these interactions lead learners to formulate and externalize hypotheses, which they then collaboratively assess and build upon, eventually arriving at appropriate responses (p. 290).

Swain concludes that this kind of learner dialogue has several implications for language teachers and testers. The collaborations themselves, she suggests, capture learning as it unfolds in the dialogues (Swain 2001, p. 288), with the participants accomplishing together what they may not have been able to do

[1]Two interesting exceptions are studies reported by Leont'ev (2002, p. 54) and Wertsch and Hickmann (1987). In the study described by Leont'ev slightly older children who did not have expert knowledge themselves served as near-peer tutors. When given the responsibility to help their younger peers, they became motivated to learn how to teach the steps needed to solve the problems. Unfortunately, very little detail is provided about the effectiveness of this approach. In Wertsch and Hickmann's study, which also involved children mediating other children, the authors concluded that the peers were not effective mediators because they tended to solve the problems for their younger partners rather than with them.

individually. Moreover, because the interactions illuminate learners' orientation to problems and their strategies for solving them, teachers can use this information to better plan instruction by addressing areas of weakness. Swain further urges test developers to consider administering tests to pairs or groups of students, as this would "more faithfully mirror regular, daily classroom and non-classroom activity" (p. 297).

Working in Feuerstein's MLE approach to DA, Kaufman and Burden (2004) investigated the possibility of training young adults with moderate-to-severe learning disabilities to be mediators. These researchers report the results of an exploratory study in which learners with Down's syndrome, cerebral palsy, brain trauma and "unattributable brain dysfunction" participated in Feuerstein's MLE and IE program (p. 110). Over the course of a year, the learners were trained to take turns as tutors and tutees as they helped each other through the program. The intervention was begun by a trained mediator, who modeled appropriate behaviors and explicitly instructed the learners how to help one another. Gradually, the learners were given the opportunity to work in pairs and to take turns mediating each other. At the end of every session, the tutors were asked to explain to the group how they had fulfilled their role, and both the tutors and the tutees stated what they had learned (p. 111).

Unfortunately, Kaufman and Burden do not provide details of the effectiveness of the mediation the learners were able to give one another. They do, however, present the learners' verbalizations in response to a series of reflection questions designed to uncover developments in their understanding of what is required to be a mediator. The learners' comments suggest that they had internalized many characteristics of effective mediators, although further research is needed to understand how these insights impacted their ability to function as tutors.

To some extent, the shortcoming of Kaufman and Burden's work is addressed in a study reported by Shamir and Tzuriel (2002), who also explored the potential for peer mediation within Feuerstein's approach to DA. These authors distinguish peer mediation from peer tutoring. According to Shamir and Tzuriel, peer mediation integrates cognitive and emotional components into the procedure; it is not limited to any given domain but is instead framed within MLE and therefore promotes the development of general learning abilities ("learning how to learn"); interactions are highly systematic, as they are guided by the theories of Vygotsky and Feuerstein; and one of the peers has greater expertise and therefore functions to mediate his partner, who must be willing to reciprocate these moves (pp. 371–372). This last point is an especially important departure from the work of Swain and of Kaufman and Burden, where the dyads were comprised of students with comparable levels of ability. Here, the roles of mediator and learner are more circumscribed, and indeed the peer mediators were taught how to implement MLE procedures and were instructed to find creative ways of helping their partners whenever possible. In this way, peer mediation in Shamir and Tzuriel's model parallels the traditional adult-child pairs described in the DA and ZPD literatures, although the authors argue that learners are generally more willing to cooperate with slightly older peer mediators than they are with adults (p. 372).

Noting that both Vygotsky's and Feuerstein's theories call for flexible interaction that is attuned to learners' needs, Shamir and Tzuriel investigated whether training could improve peer mediators' effectiveness at helping their partners develop. The researchers found that the children who participated in the three week Peer Mediation with Young Children (PMYC) program did in fact become better mediators, as evidenced by the fact that learners who were mediated by these children manifested a higher degree of the MLE criteria (e.g., feelings of competence, greater self-regulation and higher cognitive awareness) than did children in a control group whose peer mediators had not taken part in the program. In particular, the children not trained as mediators often solved the problems for the learners either by directly telling them what to do or by completing the tasks themselves, a finding that parallels the results of a similar study carried out by Wertsch and Hickmann (1987). The children trained through the PMYC program were more likely to provide clues and appropriate feedback to their peers. Furthermore, Shamir and Tzuriel report that children in both the experimental (with PMYC mediators) and control groups (without PMYC) scored the same on the pre-test (Children's Seriational Thinking Modifiability), but that the experimental group significantly outscored the controls on the CSTM when it was re-administered as a posttest.

The significance of peer-to-peer mediation is that it further strengthens the central claim of DA – that assessment and instruction should be a unified activity. While it is not uncommon to find evidence of student collaboration in today's classrooms, Shamir and Tzuriel's findings suggest that these collaborations may not take full advantage of learners' ZPDs. Moreover, it should be pointed out that while contemporary pedagogies might support peer collaboration, testing practices generally do not. As McNamara (1997) observes, most approaches to testing seek to isolate learners. Testers thus attempt to ensure that the resulting performance is not contaminated by the contributions of others or the use of mediating artifacts. The use of peer mediators challenges such methodologies by shifting the focus away from what isolated individuals can do and emphasizes instead what individuals are capable of when functioning as part of a dyad or group. Such a change in perspective does not deny that it is at times interesting and appropriate to examine the contributions of individuals. However, it recognizes that participation in activities with others can bring about development, and therefore individuals may participate differentially over time. Future work in this area would benefit from the theoretical model elaborated by Cole and Engeström (1993) for understanding individual/group functioning.

The matter of training mediators to be sensitive to learners' ZPDs is important for improving the effectiveness of not only peer-peer interactions but also teacher–student DA in the classroom. Van der Aalsvoort and Lidz (2002) investigated the effects of providing feedback to teachers about their interactions with groups of students through a procedure known as Video School Consultation (VSC). The teachers were video recorded as they mediated learners' completion of curricular tasks, and these recordings served as a point of departure for follow-up sessions in which the teachers reviewed the tapes with a professional VSC

consultant. The teachers' interactions were evaluated according to the verbal and nonverbal moves they made, including their own engagement in the activity, their efforts to regulate turn-taking, and the timing of prompts and hints (p. 124).

The researchers organized a total of 24 DA sessions. They followed the VSC procedure with half the teachers during the initial twelve assessments and with the other half during the latter twelve sessions. In addition, the students were individually administered non-dynamic tests at various points throughout the study so that their progress could be followed. In this way, Van der Aalsvoort and Lidz evaluated the effectiveness of the VSCs by considering whether the students made greater gains when their teacher was receiving feedback on the sessions (pp. 128–129). They report that over the course of the study all students showed signs of development – improved group performance during the DAs as well as higher individual scores – and that they made the greatest gains while their teacher was taking part in the VSCs, regardless of whether this occurred in the first or second half of the study. The researchers conclude that teachers can be trained through procedures such as VSC to be better mediators and that this is an important step toward realizing the full potential of DA in the classroom.

9.4 Dynamic Assessment and Cognitive Decline

Although most DA research has focused on the development of cognitive abilities among poorly performing students and learning disabled individuals, there is no reason why this work could not be applied to populations in other circumstances and at different points in the lifespan. Indeed, the later research of Vygotsky's collaborator, Luria, dealt with the remediation of aphasic adults (1973). Baltes (1987) has suggested that DA principles could usefully be extended to the investigation of cognitive modifiability among the elderly. Pointing to research that shows more intra-individual variability later in the lifespan than during childhood, Baltes argues that intervention is a viable means of exploring cognitive decline (p. 618). He reports that the research literature on cognitive training with older adults reveals that these individuals have "sizeable plasticity" in that they can be trained to perform as well on intelligence tests as younger adults who have not undergone training (ibid.). He then proposes that DA, particularly Carlson and Weidl's *Testing-the-Limits* approach, is an appropriate means of exploring this plasticity because of its intervention component. In this way, Baltes distinguishes *baseline performance* (an individual's initial unassisted performance), *baseline reserve capacity* (how much the individual can do with assistance), and *developmental reserve capacity* (the extent to which the baseline reserve capacity can be improved through an intervention program) (ibid.).

Baltes describes an especially interesting study involving memory capacity for strings of numbers and words. Young and old adults participated in an intervention program designed to improve their performance on memory tests. Although little detail is provided, Baltes reports that the elders made substantial gains and, like their

younger counterparts, were able to accurately recall long sequences of numbers following intervention. However, during a transfer stage, in which assessment conditions were altered, age differences became increasingly pronounced. In particular, increasing the speed at which items were presented disproportionately affected older participants. This finding leads Baltes to conclude that a *Testing-the-Limits* procedure that includes "conditions of high difficulty" has great potential to differentiate varying levels of ability, and should be pursued as an approach to identifying developmental dysfunctions, including Alzheimer's disease and other forms of dementia (p. 619). His more recent work has provided empirical support for his hypothesis that elders who respond less well to intervention are at greater risk for developing dementia than elders who make gains during DA (Baltes and Baltes, 1997, p. 91). In this view, responsiveness to mediation during DA reveals an aspect of cognitive ability that other assessments do not and that appears to be linked to the onset of dementia. DA, then, may prove to be an especially sensitive procedure for identifying elders at greater risk for dementia.

Wiedl et al., (2001) have also devised a *Testing-the-Limits* procedure that they use to screen elders for dementia. In their approach, Wiedl and colleagues administer a dynamic version of the *Audio Verbal Learning Test* – the AVLT of Learning Potential – six times consecutively. The test consists of a list of fifteen words that are read to participants and that they must then recall. The first two times the words are presented there is no intervention; this constitutes the pre-test and establishes each individual's baseline performance. The test is then administered two more times and is accompanied by "reinforcement, feedback about performance in the preceding part, repetition of the words not recalled, and verbalizations aimed at focussing [sic] the participant's attention on the task" (Calero and Navarro, 2004, p. 655). The final two administrations of the AVLT-LP serve as a post-test, and therefore do not include interaction between the examiner and the participant.

Following this procedure, Wiedl and colleagues report that important differences emerge in participants' abilities to process verbal input, to memorize, and to recall (Wiedl et al. 2001, p. 117). In particular, these appear to be common areas of dysfunction among patients with dementia. The authors show that their use of DA as a diagnostic for dementia meets traditional criteria of reliability and validity. They further suggest that the identification of these areas of cognitive decline could be used as the basis for further intervention (ibid.).

A number of researchers in Spain (Fernández-Ballesteros et al. 2003; Calero and Navarro, 2004) are actively pursuing the use of Wiedl's model of DA in their work involving elders with mild cognitive impairment (MCI) and dementia. In a recent longitudinal study, Calero and Navarro (2004) administered the *Mini Examen Cognoscitivo* (MEC), the Spanish version of the Mini-Mental State Examination for diagnosing dementia, to a group of elders prior to using Wiedl's AVLT-LP. In an interesting variation of Wiedl's work, the researchers re-administered the MEC at points one year and two years after the dynamic procedure. In this way, Calero and Navarro used the MEC scores to group participants as healthy, MCI, or demented, and then interpreted the AVLT-LP performances (indicators of patients'

modifiability) in relation to these groupings. At the outset of the study, none of the participants were diagnosed with dementia. Importantly, there were no significant between-group differences regarding the gains that the healthy and MCI groups were able to make through DA; that is, the percentage of gainers was approximately the same in both groups. However, the two subsequent administrations of the MEC revealed that individuals identified as gainers during the DA did not show any cognitive decline while the non-gainers declined at statistically significant levels (Calero and Navarro, 2004, p. 657). The authors suggest that degree of plasticity may be an indicator of cognitive decline, with a lack of plasticity signaling the transition from MCI to dementia (p. 658). They conclude tentatively that DA can be used to identify those at-risk elders whose responsiveness to intervention (i.e., those who gained as a result of DA) indicates that they can be helped to maintain their level of cognitive functioning if appropriate mediation is provided. To this, one should add that research must continue to explore the effectiveness of various forms of mediation for specific individuals, so that more and more people may be identified as gainers and may benefit from appropriate intervention.

A research project with precisely this aim is currently being developed by a team of applied linguists (of which this author is a member) at The Pennsylvania State University. Led by Sinfree Makoni, these researchers are interested in improving elder-caregiver interactions by providing insights into the forms of support elders need to carry out daily activities. In much the same way that Shamir and Tzuriel (2000) found that untrained peer mediators gave too much assistance, the research in health care and geriatrics reveals that caregivers often complete tasks *for* elders rather than *with* them. For example, Fulmer and Gurland (1997, p. 921) offer the example of "an elder with no cognitive impairment who demonstrates capacity to self-medicate and yet is administered daily medication by others, 'just in case.'" While this no doubt facilitates caregivers' performance of their responsibilities, it can also erode elders' sense of agency (ibid.). Makoni and colleagues are developing a dynamic version of the Medication Management Test (MMT) that can be used to explore how much assistance elders actually need to take responsibility for self-medication and whether these individuals can learn strategies to maintain – and perhaps improve – their level of functioning. The insights DA offers into cognitive functioning would appear to make it an excellent candidate for such research.

9.5 Dynamic Assessment and Social Justice

Sternberg and Grigorenko (2002, pp. 22–23) introduce DA with a hypothetical example of two young boys, Alberto and Javier, growing up in Caracas, Venezuela. Alberto was born into an upper class family, attends private schools, and speaks both English and Spanish; he plans to pursue a career in international finance. Javier, on the other hand, was born to a poor family and raised in the slums. Javier attended a public school that was under funded and had very few resources. Not seeing the connection between the activities of school and home, Javier became

disinterested and dropped out by grade five to begin making money working on the streets. Sternberg and Grigorenko observe that Alberto would probably outperform Javier on most conventional tests of ability. In their view, this is because such tests do not take account of the possibility that predictions based on test scores can be undone through powerful intervention. As Valsiner (2001, p. 86) puts it, such tests assume the future to be a simple extension of the past, with the result that an individual's future is a self-fulfilling prophecy: Javier will not have future academic success because he will not be given access to the necessary cultural resources since his test performance does not warrant such an investment.

Shohamy (1999, 2001) maintains that testing operates largely for gatekeeping purposes, granting opportunities and prestige to some but not others. In fact, the very notions of criterion-referenced and norm-referenced assessments reveal this goal of sorting individuals into pre-determined categories of *pass/fail, accept/reject, A, B, C, D, F,* etc. As Sternberg and Grigorenko (2002, p. 16) further point out, the situation is even more serious since tests favor individuals from some backgrounds over others. Returning to the example of Alberto and Javier, the latter student is disfavored not only because he has fewer years of schooling; even if the two boys were tested on the first day of school, it is likely that Alberto, because he comes from an environment that values academic learning, would still outperform Javier. According to Sternberg and Grigorenko, this would not be due to the latter's poor abilities in general, but rather to the disjunction between his abilities and those that are privileged in school settings. Indeed, Greenfield (1997) reports a particularly relevant finding in her exploration of ability testing among Mayan children. She concludes that many of the learners struggled with the test because collaboration with peers was not allowed, a concept the children did not understand. In the context of school (especially testing), such collaboration is generally seen as cheating while outside of school it is a necessary part of the children's everyday functioning.

Throughout its history, DA has been marked by a clear commitment to helping underprivileged and at-risk individuals: the earliest discussion of the ZPD in Vygotsky's writings concerned IQ testing and underestimates of ability among certain groups of children; in Israel, Feuerstein's programs have sought to address shortcomings of the educational system that he argues have doomed to failure immigrant populations and individuals with learning disabilities; more recent efforts have focused on improving the care given to elders and the detection of dementia. In this way, DA researchers have endeavored to transform social practices and challenge common perceptions of poor test takers by mediating individuals into higher levels of functioning that exceed predictions made on the basis of traditional examinations. Such an agenda has led more mainstream testers to reject DA on the grounds that it is not a scientific enterprise (Snow 1990, p. 1135). However, this criticism is based on an understanding of science that views quantification and measurement as requirements for objectivity (see Ratner 1997 for a critique of this position). Given its humanistic appeal and goal of enriching individuals' lives, DA is perhaps more in line with what Luria (1979) describes as "romantic science." This perspective eschews the reductionism of

psychometric methods in favor of in-depth case studies that rely on observation, empathy, and interaction to understand human beings. The abundance of examples in the DA literature of "hopeless cases" who, through dynamic interventions, have achieved more than anyone thought possible (e.g., Feuerstein et al. 1988, pp. 1–5), attests to the merits of this approach.

Nevertheless, DA is not a magical means of transforming individuals overnight but instead requires a substantial investment of time, effort, and resources (Tannenbaum 1988: x). What sets DA apart, and what is perhaps its greatest appeal, is the optimism of its view that human beings can develop through cultural means, and thus can overcome what Vygotsky called "disontogenesis." Feuerstein (Feuerstein et al. 1988, p. 14) captures this notion in his discussion of the two stances one can take when interpreting assessment results. The first, which he terms *passive acceptance*, views individuals' abilities as immutable. According to Feuerstein, such a perspective results, at best, in efforts to modify the *environment* rather than the individual. This is at the heart of programs that segregate certain individuals from the rest of the population so that they may be appropriately treated. However, Feuerstein argues that because such treatment programs uncritically accept results of assessment procedures, they fall short of exploring individuals' abilities, and instead lead to "lowered expectations, a watered-down curriculum, and social isolation" (Gindis 2003, p. 212). The other response to assessment results is *active modification*, which is interested in "increasing the individual's modifiability and enhancing his adaptational capacities" (Feuerstein et al. 1988, p. 14). That is, active modification seeks not to modify the environment but to help individuals develop so that they may perform in various contexts.

Gindis (2003) remarks that Vygotsky made a similar point in his description of *primary* and *secondary disabilities*. In this model, primary disabilities are biological in nature (e.g., auditory and visual impairments) whereas secondary disabilities result from the social world's responses to primary disabilities. That is, "expectations, attitudes, and the spiritual atmosphere created by society influence the access of a child with a disability to sociocultural knowledge, experiences, and opportunity to participate in shared or joint activities with peers" (p. 203). Today, as in Vygotsky's time, this often means that individuals are denied access to the very opportunities that might enable them to overcome the challenges they face. The resulting "distorted development" (p. 202) was described by Vygotsky as *disontogenesis*. For Vygotsky, it is the internalization of symbolic tools that is the key to remediation; cultural intervention is the means through which one can undo the predictive validity of traditional tests. This is as true with underprivileged populations as it is with the learning disabled or the elderly. To paraphrase Bruner's (1980) endorsement of Feuerstein's MLE approach to DA, mediation is fundamental to being human, and through mediation all human beings can develop. To this, Vygotsky would likely add, "the path of cultural development is unlimited" (Vygotsky 1993, p. 169, cited by Gindis 2003, p. 204).

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