Younghee Sheen

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Corrective Feedback, Individual Differences and Second Language Learning

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Corrective Feedback, Individual Differences and Second Language Learning

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To my parents
사랑하는 아버지와 어머니께 이 책을 바칩니다.

Preface

Since my journey as an ESL learner began nearly 15 years ago, I have often been asked this question: 'Where did you pick up that word/expression and learn to use it so well?' Many years later, when I entered graduate school to develop myself as a Second Language Acquisition (SLA) researcher, I found the answer to this question in the books and articles on SLA that I read. In fact, I found multiple answers.

Rod Ellis' books (1994, 1997) made me realize that I was an English user/speaker as well as a learner and that 'learning' and 'communicating' were inextricably linked; not only was I constantly learning the language but at the same time I was using it as a tool for effective communication. In accordance with Schmidt's (1990, 1994) Noticing Hypothesis, I realize in retrospect that I must have been an effective noticer, constantly attending to specific exemplars of language in the input. And in accordance with Swain's (1985, 1995) Output Hypothesis, I now see that I must have been constantly testing my interlanguage hypotheses through linguistic output as I attempted to move beyond comprehending messages to producing increasingly complex messages of my own. I learned from Gass (1997), Long (1996) and Pica (1994) about the importance of the 'acquisition-rich' input I was receiving and the interactions I had with native and nonnative speakers over the years. These researchers also helped me to understand how negotiation for meaning, communication breakdown, and interactional feedback/corrective feedback helped me to advance my English. In sum, what I learned from my SLA texts resonated with my own experience as an L2 learner. In particular, I developed a strong personal belief that corrective feedback was an essential element in successful second language learning.

However, it was not until I read a study by Lyster and Ranta (1997) that a theoretical interest in corrective feedback was sparked in me. Lyster and Ranta documented the different types of corrective feedback they observed in Canadian immersion classrooms. They reported that one of the teachers' most common corrective strategies was recasts but that these were not perceived by their young learners as correction and thus were ineffective in attracting their attention. I was struck by their findings regarding recasts because I was aware that, as an ESL learner, I frequently did notice recasts. I was convinced that L2 learners must benefit from them even when they arise in natural conversation. I'd like to illustrate this

in Episode 1 below. This episode is the recollection of a conversation I had with a native speaking American friend many years ago.

Episode 1

Younghee:	She didn't go there often because she didn't have car.
Cindy:	Oh, I see.
Younghee:	Because it was too far to walk. So we sometimes went together because I had car.
Cindy:	You had A car.
Younghee:	(a moment of pause) Oh, yes, I had a car. So she was happy.

Neither Cindy nor I knew that her interactional move constituted a recast (i.e., a reformulation of my erroneous utterance). However, as I paused after the recast, I remember clearly thinking to myself 'Oh. . .. She just corrected me. I missed *a*, the article. I should've said *a car*'. Although her recast only happened once during our conversation, it had an impact on me because from that time onwards I started paying more attention to the use of indefinite articles (although I still have problems with them!).

In contrast, Lyster and Ranta argued that their classroom learners did not notice recasts. How could this be? Why was it that their learners were not aware of the fact that they were being corrected, while I noticed that my friend was correcting me while we were conversing? Part of this puzzle was soon solved in a conversation I had with my Korean-American friend, Junhan. The crucial part of this conversation, which I happened to record as a field note during my training as an SLA researcher, is shown in Epsiode 2 below. Junhan is a fluent (but not accurate) speaker of English, mainly as a result of being immersed in a highly interactive English speaking work environment for over 15 years without ever having enrolled in a formal ESL course.

Episode 2

Younghee:	So when did you cancel the membership?
Junhan:	Man, I did it long times ago.
Younghee:	Really? A long time ago?
Junhan:	Yeah, that was long times ago.
Younghee:	Wait, *NOT long times. A long time ago*
Junhan:	Ok. . .. (a moment of pause) So I was wrong.
Younghee:	Mmmm, didn't you notice I was correcting you? That was my correction.
Junhan:	Man, how do I know? I'm, I'm just focusing on what I'm saying. You didn't mention my mistake. Until just now.

During this naturally occurring conversational exchange, I made two corrective feedback moves – a recast followed by an explicit correction. He was not aware that he was being corrected, however, until the second explicit correction. While he later told me that no one had ever corrected the mistake before me, it is likely that he had simply failed to notice he was being corrected when the corrective feedback took the form of a conversational recast. So maybe Lyster and Ranta were right.

Recasts can be problematic; they may not be noticed and thus fail to induce awareness on the part of learners. This may be why they can be ineffective in promoting learning and why learners like Junhan failed to develop accuracy even though they experienced plenty of comprehensible input and opportunities to speak English.

I would like to suggest that just as Junhan and I showed different levels of receptivity to the same type of corrective feedback involving the same linguistic feature, learners in general vary in terms of their preference and abilities to make use of error correction in the classroom. Of course, it is possible that one type of corrective feedback is simply more effective than another for all learners, but it would seem to me equally possible that individual difference (ID) factors influence what kind of corrective feedback is effective for different learners. Zoltán Dörnyei (2005) emphasizes how important ID factors are in general in accounting for how learners learn and how successful they are. However, there are still relatively few studies that have investigated the effects of corrective feedback in a classroom context (as opposed to a laboratory context) and even fewer have investigated the extent to which ID factors interact with corrective feedback in determining its effectiveness.

For corrective feedback to be effective, it needs to be provided in the right way for a particular learner and in a form that suits their level of L2 development. The corrective feedback episodes involving myself and Junhan illustrate this. In my own episode, the correction did not need to be explicit as I had already begun to acquire the target form. But in Junhan's case, explicit correction was necessary because he was not yet able to produce the correct form. In other words, depending on the learner's stage of development, either implicit or explicit feedback may work best. There is a theory that addresses this way of looking at corrective feedback – sociocultural theory.

Corrective feedback is not just an oral phenomenon. It is also a regular feature of writing instruction. In fact, looking back on my own development as an L2 writer, I can see that written correction was just as important as oral correction (not that the written correction I received was always that useful!). I recall that the written corrective feedback I received during my ESL courses many years ago was often difficult to process because it addressed many different things at the same time – content, organization and language. Later, from my informal talks with my colleagues and friends who teach L2 writing, I have learned that the provision of written corrective feedback is a real struggle for teachers too because they spend a great deal of time correcting their students' papers without any clear idea of whether the correction they provide is helpful (or possibly even damaging) to their students. Later, I found out that research had failed to demonstrate convincingly that written corrective feedback was indeed effective, let alone identifying which type of correction was the most effective. Ferris' (2002, 2004) influential work on written corrective feedback has made it clear to me that much research is needed in this area.

Thus, motivated by my own L2 learning experiences of both oral and written correction and encouraged by the new line of ID research that seeks to explore how IDs influence the way in which learners respond to and interact with the instruction they receive, I arrived at the topic of my book. What I hope to achieve in this book is a 'scientific' way of seeking answers to questions that derived initially from my

personal experience of learning to speak and write in English and that were then shaped by my reading of SLA and L2 writing texts. Are some types of corrective feedback more effective in promoting learning than others? Does written corrective feedback work as well as oral corrective feedback? Why do certain types of correction work for some learners and not for others? My hope is that this book would not just satisfy my own curiosity but would also make a contribution to our understanding of oral and written correction and the relationship between corrective feedback and learner difference factors for researchers and language educators alike. Previous publications such as Gass et al. (1998), Mackey and Gass (2006), and Mackey (2007a) have explored ways in which CF research can move forward. However, these have dealt primarily with oral interaction research in general, not exclusively with CF research. Ferris and Hedgcock (2005) and Hyland and Hyland (2006) have provided a number of perspectives on feedback, but these are grounded in second language writing pedagogy rather than SLA. Given the significance CF carries for both theory building and language pedagogy, there is a clear need to explore the relationships between oral and written CF and their interaction with learner individual factors.

The book is based on the research I completed for my PhD at the University of Nottingham. I have added a number of new chapters and have also substantially updated the research on corrective feedback including adding a section on computer-mediated CF. My original research was conducted within a cognitive-interactional framework and this is reflected in the contents of this book. However, I have also acknowledged the importance of other theoretical frameworks for the study of corrective feedback. In particular, I have made a number of references to sociocultural theory, pointing out both the potential and the limitations of this theory for the study of corrective feedback.

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This book would not have been possible without the assistance and support of fellow scholars, classroom participants, and my colleagues at American University. Taken in order, I would like to thank Zoltán Dörnyei, who supervised my doctoral thesis, for being a powerful motivator who made sure I met his very high standards from the start. Rod Ellis for encouraging me to convert my thesis into this book, as well as for providing feedback on an initial draft. Roy Lyster for being a thoughtful mentor and for helping me to fine-tune my ideas about corrective feedback. I also gratefully acknowledge Francis M. Hult and Leo van Lier, the Educational Linguistics book series editors as well as Lydia Shinoj, Helen van der Stelt and Jolanda Voogd at Springer Publishing for their support, patience and efficiency.

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I would like to show deep appreciation to my father for his unconditional support and guidance, and I dedicate this book to my mother, whose courage and love of life have never failed to inspire me.

Washington, DC Younghee Sheen

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Chapter 1
Introduction

1.1 What Is Corrective Feedback?

In the general literature on classroom teaching, feedback is viewed as an important classroom activity. Good and Brophy (2000) pointed out that teachers' feedback motivates students by letting them know how they are doing, and argue that feedback should be provided whether the student's response is correct or incorrect. The focus of this book is one type of feedback, *corrective feedback,* which is the feedback that follows an incorrect (ungrammatical) response. In the second language acquisition (SLA) literature 'corrective feedback' has been used as an umbrella term to cover *negative feedback*, *error treatment*, and *error correction* occurring in both natural and instructional settings. One of the earliest definitions of corrective feedback is provided in Chaudron (1977): 'any reaction of the teacher which clearly transforms, disapprovingly refers to, or demands improvement of the learner utterance' (p. 31). Corrective feedback can take place either in classrooms where it is provided by language teachers or other students or in naturalistic settings where it is provided by native speakers or other non-native speakers.

To date, research into the effects of corrective feedback on second language (L2) learning has primarily focused on the development of grammatical accuracy (cf. Takimoto, 2006). Therefore, corrective feedback is commonly referred to as a teacher's reactive move that invites learners to attend to the grammatical accuracy of something they have said or written. Corrective feedback can occur in a traditional grammar lesson as well as in the context of a communicative activity/exchange in response to student writing. While corrective feedback in grammar lessons is not without merit, it is the use of corrective feedback in the context of communicative interactions that has attracted attention to SLA theorists and researchers.

Long (1991) coined the term 'focus-on-form' to refer to attempts to induce learners to pay attention to linguistic form while they are communicating. Oral corrective feedback is one type of focus-on-form technique when it targets learner errors that arise when the learners' primary focus is on understanding messages within a communicative activity. For Long, this is an important and necessary condition for any type of corrective feedback to be effective in assisting learning because focus-on-form provides an opportunity not just to pay attention to linguistic form but also

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to make form-meaning connections. That is, corrective feedback helps learners to understand the relationship between a particular linguistic form and its corresponding meaning in context. Long argues that corrective feedback can assist acquisition when learners experience a communication problem, make an error and then receive feedback that helps to make input comprehensible or enables them to modify/correct their utterance. However, it should be noted that not all oral corrective feedback occurs as a result of a communication breakdown. It can also occur as a didactic move that draws learners' attention to form even though the teacher and learners have no trouble comprehending each other. Therefore oral CF can involve both *negotiation of meaning* and *negotiation of form*. Moreover, CF can be provided either immediately/on-line following the error a learner has made or can be delayed until later. Doughty (2001) argues that CF assists acquisition when the feedback is provided at a time that the learner is cognitively primed to pay attention to the feedback in what she calls 'a window of opportunity'. Only this way can CF effectively activate the cognitive mechanism involved in comparing on-line the gap between an error and the target form. Thus she contends that effective CF should be immediate rather than delayed. However, as we will see, other researchers have challenged this view, arguing that even when CF is provided off-line it can assist acquisition.

Focus-on-form is an interactional construct. That is, it can be applied to the CF that occurs in oral interactions but is less clearly relevant to written CF. The same goes with other constructs related to focus-on-form – *negotiation of meaning*, *negotiation of form,* and *window of opportunity.* However, other key constructs such as *noticing* and *noticing the gap* are applicable to both oral and written CF. These important constructs are considered in the next chapter.

Throughout this book, the term corrective feedback – oral or written, immediate or delayed – will be used to refer to any feedback that provides learners with evidence that something they have said or written is linguistically incorrect. There are a number of different strategies for performing CF. As these strategies differ somewhat depending on whether they realize oral or written CF, I will consider them separately. I will conclude this section with a brief discussion of 'uptake'.

1.2 Types of Oral Corrective Feedback Strategies

1. Recasts

A recast is a reformulation of the learner's erroneous utterance that corrects all or part of the learner's utterance and is embedded in the continuing discourse.

Example 1.1
S: How many people in your picture?
T: How many people are there in my picture? Er, three people.

Recasts can be partial (i.e., only part of the learner's erroneous utterance is reformulated) or whole (i.e., the learner's complete utterance is reformulated). They can also be 'didactic' or 'conversational'.

a. *Didactic recasts*
A didactic recast is a partial or full reformulation of the learner's erroneous utterance that draws the learner's attention to the exact location of the error he/she has made. In a didactic recast the reformulation is driven by a pedagogical rather than a communicative purpose.

Example 1.2
S: Women are kind than men.
T: Kinder. (partial recast)

b. *Conversational recasts*
A conversational recast occurs in a context where there is a breakdown in communication. That is, the corrector fails to understand something that the learner has said and reformulates to check what he/she thinks was intended. Thus conversational recasts are driven by a communicative purpose.

Example 1.3
S: How much weigh?
T: What?
S: How weight are you?
T: How much do I weigh? (conversational recasts)

2. Explicit correction
Explicit correction refers to a pedagogical move that clearly signals to the learner that he/she has made an error and that also provides the correct form. This treatment often accompanies phrases such as 'no', 'It's not X but Y', 'You should say X', 'We say X not Y'.

Example 1.4
S: I'm late yesterday.
T: You should say 'I was late', not 'I'm late'.

3. Explicit correction with metalinguistic explanation
This involves the provision of both the correct form and a metalinguistic comment on the form.

Example 1.5
S: Fox was clever.
T: The fox was clever. You should use the definite article 'the' because fox has been mentioned.

4. Clarification requests
A clarification request signals that something is wrong with the learner's utterance by saying 'sorry?', 'Pardon me'?, or 'I don't understand what you just said'.

Example 1.6
S: Why does he taking the flowers?
T: Sorry?

5. Repetition
Repetition refers to mimicking the learner's erroneous utterance either in its entirety or partially as a way of eliciting the correct form from the learner.

Example 1.7
S: Mrs. Jones travel a lot last year.
T: Mrs. Jones travel a lot last year?

The incorrect portion of the repetition is often said with emphatic stress to draw attention to it.

6. Elicitation
Elicitation refers to a repetition of the learner's utterance up to the point where the error occurs as a way of encouraging self-correction.

Example 1.8
S: Once upon a time, there lives a poor girl named Cinderella.
T: Once upon a time, there. . .

7. Metalinguistic clue
This feedback differs from (3) above in that the teacher provides a metalinguistic comment but withholds the correct form as a way of prompting the learner to self-correct the error.

Example 1.9
S: He kiss her.
T: You need past tense.

In Examples 1.1 through 1.5, the CF is input-providing in that the learner is supplied with the correct form. In Examples 1.6 through 1.9, the CF is output-prompting as it attempts to elicit a correction from the learner. Oral CF can also be implicit, as when the teacher simply requests clarification in response to the learner's erroneous utterance, (example 1.6) or explicit, as when the teacher directly corrects the learner (example 1.4) and/or provides some kind of metalinguistic explanation of the error (examples 1.5 and 1.9). Conversational recasts become somewhat more implicit when they serve as a confirmation check as in Example 1.3. However, didactic recasts are likely to be more explicit as in the following exchange – S: My loom is messy. T: *Your room is messy*. Also, partial recasts are more explicit (example 1.2) than full recasts in that they signal more clearly what was erroneous in the learner's utterance.

Another distinction depends on whether the corrective feedback is provided more or less immediately following a learner's erroneous utterance during a communicative activity or whether it is withheld until the learner has completed the communicative task. The former constitutes immediate/on-line CF whereas the latter constitutes delayed/off-line CF. In the SLA literature, on-line CF is the norm, but some teachers prefer to delay correcting learners' errors until after they have finished a communicative activity.

1.3 Types of Written Corrective Feedback Strategies

The following descriptions and examples of written CF strategies are based on Ellis (2009, pp. 99–102). The typology is a modified version of the one presented by Ellis.

1. Direct non-metalinguistic written correction
This correction option simply provides the learner with the correct form. This can be achieved in a number of different ways – crossing out an unnecessary word, phrase or morpheme, inserting a missing word or morpheme, and writing the correct form above or near the erroneous form.

> a a the
> A dog stole bone from butcher. He escaped with ~~having~~ bone. When the dog was
> over a a saw a
> going ~~through~~ bridge over ~~the~~ river he ~~found~~ dog in the river.

2. Direct metalinguistic written correction
This refers to the provision of the correct form with an accompanying explanation of some sort. One way of doing this is to number specific types of errors and then provide a brief metalinguistic comment on them below the written text, as in this example.

> (1) (2) (3)
> A dog stole bone from butcher. He escaped with having bone. When the dog was
> (4) (5) (6)
> going through bridge over the river he found dog in the river.
>
> (1), (2), (5) and (6) – you need 'a' before the noun when a person or thing is mentioned for the first time.
> (3) – you need 'the' before the noun when the person or thing has been mentioned previously.
> (4) – you need 'over' when you go across the surface of something; you use 'through' when you go inside something ('go through the forest').

3. Indirect written correction (not located)
This involves indicating that the student has made an error without either locating or correcting it. The indication appears only in the margin. With this type of correction learners have to locate the errors they have made themselves.

XXX A dog stole bone from butcher. He escaped with having bone.
XX When the dog was going through bridge over the river he
XX found dog in the river.

4. Indirect written correction (located)

This correction type differs from the previous one in that it actually indicates where the errors are while still not providing the correct form. Errors can be indicated in a variety of ways – underlining the errors, using cursors to show omissions in the student's text or by placing a cross 'X' in the margin next to the line containing the error (as in the example below).

A dog stole X bone from X butcher. He escaped with XhavingX X bone. When the dog was going XthroughX X bridge over XtheX river he found X dog in the river.
X = missing word
X__X = wrong word

5. Indirect written correction using error codes

This type of correction provides learners with some form of explicit comment about the nature of the errors they have made by way of error codes. Error codes consist of labels that are placed over the location of the error in the margin of the text to signal the specific type of error. This still constitutes an indirect form of CF because the learners are made responsible for making the actual corrections themselves.

art. art. WW
A dog stole bone from butcher. He escaped with having bone. When the dog was
prep. art. art.
going through bridge over the river he found dog in the river.

6. Indirect metalinguistic written correction

This is very similar to the second previous category (direct metalinguistic written correction). That is, the CF involves the provision of metalinguistic clues about the errors. However, whereas the actual correction is provided in (2) it is withheld indirectly in metalinguistic correction. For example, if the learner has omitted the indefinite article the clue might be 'What word do you need before a noun when the person/thing is referred to for the first time?'

7. Reformulation

This option reformulates the entire sentence or paragraph that contains erroneous forms in order to provide learners with positive input, which they can make use of to identify their errors. Reformulation can be considered a form of direct CF in that it provides learners with the corrections. However, learners have to carry out a comparison of their own and the reformulated text, which places the burden of locating specific errors on them. Reformulation typically involves more than just addressing the linguistic errors that learners make. It also addresses stylistic problems and aims to improve coherence.

In one respect oral and written CF differ: whereas oral CF occurs on-line or offline, written CF is almost invariably offline (i.e., learners receive the CF some time after they have committed the error). In two other respects, however, there are clear parallels between oral and written CF. The distinction between indirect/direct CF roughly parallels that between output-pushing and input-providing oral CF. In the case of indirect written CF and output-pushing oral CF, the task of making the correction is left to the learner. In the case of direct written CF and input-providing oral CF, the learner is given the actual correction. As we will see later, researchers differ in which type of CF (indirect/output-pushing or direct/input-providing) they consider theoretically more likely to promote learning. Another way in which oral and written CF are similar concerns the opportunity for uptake.

1.4 Learner Uptake

The term 'uptake' has been used by researchers investigating oral CF but, in fact, the notion it labels is equally relevant to written CF. Lyster and Ranta (1997, p. 49) define uptake as 'a student utterance that immediately follows the teacher's feedback with the intention of drawing attention to some aspect of the student's initial utterance'. They distinguish two types of uptake – *repair* and *needs repair*, as illustrated in the two examples below. In the case of uptake with repair, the CF results in the learner successfully correcting the original error (example 1.10). In the case of needs repair, the error is not corrected. For example, the learner may simply continue with the discourse or acknowledge the correction (example 1.11).

Example 1.10

S: There was the crow who stole. . .
T: There was A crow who stole a piece of cheese.
S: There was a crow. (uptake with repair)

Example 1.11

S: His mom saw it and yelled at him.
T: His mom saw what?
S: saw snake home.
T: saw the snake. (recast)
S: yes. (uptake with no repair)

Lyster and Ranta were referring to uptake following oral CF. In the case of written CF learners may have the opportunity to revise their original text. If they do, they may or may not uptake the corrections that they have been given. The notions of 'repair/successful uptake' and 'needs repair/unsuccessful uptake' also apply to written CF. 'Repair' occurs when the L2 writer successfully uptakes a correction by incorporating it in their revised tests. But sometimes learners may fail to uptake/revise it or may attempt a correction but end up producing another error in their revisions.

1.5 Focused and Unfocused Corrective Feedback

Another important distinction is *focused* vs. *unfocused* feedback. Most oral CF studies have targeted just one or two specific linguistic forms (cf. Loewen, 2005). In other words, the CF has been highly focused and intensive. Some of the most commonly investigated linguistic features in English CF are question formation (e.g., Mackey, 1999), the alternative location of direct and indirect objects following ditransitive verbs such as 'give' and 'explain' (known as dative alternation, e.g., Carroll and Swain, 1993), regular past tense, 'ed' (e.g., Ellis et al., 2006), and tense consistency (e.g., Doughty and Varela, 1998; Han, 2002). These studies used focused CF that targeted the errors involving a specific feature and examined the effect of CF on learning gains in relation to that feature.

In contrast, written CF studies have traditionally investigated unfocused CF where the CF targets at a range of linguistic features (e.g., articles, past tense, copular 'be', prepositions, passive voice, phrasal verbs). These studies compared outcomes in terms of overall improvement across a number of different grammatical structures. More recently, however, written CF researchers have adopted the kinds of design used in oral CF research and have investigated the effects of highly focused CF. My own study of written CF – reported in Chapter 5 of this book – examined CF directed at a very specific grammatical feature – English indefinite and definite articles.

Throughout this book, the term *focused CF* will be used to refer to intensive corrective feedback that repeatedly targets one or a very limited number of linguistic features, whereas 'unfocused CF' will be used to refer to extensive corrective feedback that targets a range of grammatical structures.

1.6 Theoretical Issues

While there are commonalities in the theoretical issues that have figured in discussions of oral and written CF, there are also some notable differences. Also, in general, oral and written CF have been treated as separate phenomena. For these reasons, I will consider oral and written CF separately. Later in the book, I will point out some commonalities.

1.6.1 Oral Corrective Feedback

For almost half a century, theories of L1/L2 acquisition have taken different positions regarding the importance of corrective feedback (CF). Accordingly, we have seen a number of pendulum swings in what the teacher should do with learner errors. For example, in the 1950s and 1960s, under the influence of behaviorist views of language learning that emphasized habit-formation, errors were viewed as damaging to learning and thus in need of immediate eradication. In the 1970s and 1980s, under the influence of nativist views about language learning, acquisition was seen as driven by positive evidence and CF as playing no or only a minor role. More recently, under the influence of interactionist theories of language learning, errors were seen as 'treatable' through the feedback that arises naturally in interaction. Interactionist theories have also led to hypotheses about which type of CF is most effective in promoting learning. In contrast, sociocultural theory claims that there is no one 'best' type of CF but rather that the feedback needs to be tailored specifically to individual learners through socially mediated, face-to-face interaction. These theoretical differences can only be resolved empirically – through studies that examine whether CF does affect interlanguage development (i.e., enables learners to restructure their L2 mental grammars); what type of CF is most likely to promote learning; and the various learner factors such as age, language aptitude and language anxiety that mediate its effect (e.g., Sheen, 2008). Increasingly, CF is being viewed as a social phenomenon, dependent on the particular configuration of social factors that arise in different situations of language use (see Seedhouse, 2004).

Of these various theoretical accounts of CF, the one that has attracted the most attention and that informs the bulk of the research addressed in this book is the cognitive-interactionist one. This has provided a number of key theoretical constructs that have informed the study of CF. The *interaction hypothesis* (Long, 1991, 1996) claims that CF, arising from negotiation for meaning, provides an opportunity for learners to attend to linguistic form. The *output hypothesis* (Swain, 1985, 1995) and *noticing hypothesis* (Schmidt, 2001, 1995) claim that CF helps learners to notice the gap between interlanguage forms and target forms and then pushes them to repair their errors. The *transfer appropriate processing hypothesis* (e.g., Segalowitz and Lightbown, 1999) posits that the CF that pushes learners to retrieve the correct form in the same kind of communicative context that they will experience outside the classroom is more likely to be effective. The *counterbalance hypothesis* (Lyster and Mori, 2006), building on the notion of transfer appropriate learning, proposes that the most effective type of CF varies according to whether learners are oriented towards form or meaning. These cognitive theories see CF as making a substantial contribution to interlanguage development. CF promotes learning because it induces noticing (the process by which the learner attends to input) and noticing-the-gap (the process by which the learner notices the difference between his interlanguage forms and target forms) and prompts repair. However, the theories differ with regard to the specific type of CF they claim is needed. Whereas Long emphasizes the importance of input-providing feedback (recasts) in the context of negotiating for meaning, Lyster and his associates have argued that the feedback that

occurs in the negotiation of form and that, in particular, output-prompting feedback is also effective, if not more effective.

Sociocultural theory differs from these cognitive theories because it claims that there is no single type of CF that will work best for acquisition but, rather, that CF is effective when it is tailored to the learner's stage of development. For example, if the CF focuses on a form that the learner has not yet begun to acquire, more explicit CF may be needed. On the other hand, if the CF focuses on a form that the learner has already begun to use albeit erroneously, implicit CF may be sufficient to promote learning. According to sociocultural theory, the effectiveness of CF lies in its propensity for scaffolding interaction in order to construct a 'zone of proximal development' (i.e., the potential space in which the learner can perform a task successfully with the assistance of an expert) for the learner. Through such scaffolding, learners are able to use the target language with the assistance of an interlocutor in ways that they would be unable to do on their own. According to this view, what constitutes a beneficial form of CF for one learner might not be so for another, either because it is pitched at a level too far in advance of the learner or because it fails to 'stretch' the learner by posing a sufficient challenge.

1.6.2 Written Corrective Feedback

In a highly controversial paper, Truscott (1996) concluded that written grammar correction has no effect on second language acquisition and, in some cases, it may even be harmful and thus should be abandoned. Drawing on findings from a series of written CF studies and SLA theories, he advanced three major arguments against the use of written CF. First, he contended that there is no empirical evidence to support the claim that written error correction assists L2 learners in improving their written accuracy but, rather, that there is strong evidence refuting the effectiveness of CF. Second, from a theoretical standpoint, he claimed that error correction cannot contribute to the development of L2 competence or influence the natural order and sequence of second language acquisition as these are dependent on the learner's own built-in syllabus. Third, he argued that teachers' provision of CF creates many practical problems ranging from the inconsistent way in which feedback is provided, through students' negative attitudes towards CF, to the anxiety and lack of motivation that CF generates. Although Truscott (1996) based his claims on a number of empirical studies in both L2 writing research and SLA and, to some extent, presented compelling arguments, the validity of his conclusion has been challenged by many L2 writing researchers (e.g., Chandler, 2003; Ferris, 1999). For example, Chandler pointed out that Truscott's review of written CF studies (such as those by Semke and Lalande, which he cited in support of his claims) overlooks the fact that these studies reported statistically non-significant results.

In fact, past written CF studies have produced very mixed and unclear findings, leading to different interpretations. In her rebuttal of Truscott (1996), Ferris (1999) wrote, 'If nothing else, reading Truscott's essay and reviewing the primary sources

he cites has highlighted for me the urgent need for new research efforts which utilize a variety of paradigms to examine a range of questions that arise around this important topic' (p. 2). Ferris also stressed that error correction and improving student accuracy are important issues in L2 writing from both a theoretical and practical standpoint because most teachers expend considerable effort providing feedback to L2 writers, who in fact desire and value it. However Ferris acknowledged the need for more and better designed studies of written CF. The debate between Truscott and Ferris has been instrumental in stimulating studies designed to tackle the question of whether written CF can make a difference in improving the accuracy of L2 writing.

Written CF researchers have increasingly borrowed from the design of oral CF studies to carry out studies that are more robust methodologically while maintaining ecological validity (e.g., Ellis et al., 2008; Sheen, 2007a).

1.7 Key Issues in the Study of Corrective Feedback

Oral CF research has been largely grounded in SLA theories and hypotheses, whereas written CF research has drawn L1 and L2 writing composition theories. These differences notwithstanding, there are a number of issues common to the study of oral and written CF. These issues are: (a) whether oral and written CF works in the sense that it contributes to L2 acquisition, (b) what constitutes the most effective approach for implementing CF, (c) what contextual and individual learner factors contribute to the effectiveness of oral and written CF, (d) whether it is possible to develop a common methodology for investigating the effectiveness of oral and written CF, and (e) to what extent do learners pay attention to the CF they receive.

1.7.1 Does Corrective Feedback Work?

There is now a substantial number of studies that have demonstrated the positive effect of oral CF on L2 learning (see Mackey, 2007a). In contrast, there have been far fewer studies demonstrating the efficacy of written CF, and the extent to which written CF can influence acquisition remains a matter of some controversy. As noted above, at the center of this debate is Truscott's (2004, 2007) consistent argument that written CF is not effective in promoting L2 learning. However, a number of recent studies have shown that written CF, like oral CF, can contribute to acquisition (e.g., Bitchener and Knoch, 2008, 2010; Ellis et al., 2008; Sheen, 2007a).

There is a growing consensus among SLA researchers that oral CF arising from the negotiation of meaning (in which interlocutors make conversational adjustments in order to resolve a potential communication breakdown) and from the negotiation of form (in which an interlocutor asks to modify the erroneous form while no communication breakdown occurs) facilitates learning by assisting learners in noticing the gap between their erroneous output and the target form (Mackey and Gass, 2006). Nicholas et al. (2001), Long (2007), and Ellis and Sheen (2006) have

provided reviews of the research on one type of CF – recasts – which has attracted the most attention from researchers (also see Leeman, 2007; Mackey, 2007a). Long (1996, 2006) argued that recasts facilitate acquisition by drawing learners' attention to form while keeping learners focused on meaning throughout a conversational exchange. Studies by Doughty and Varela (1998) and Han (2002) lend empirical support for this claim. In another line of research, several studies have found that explicit types of corrective feedback such as explicit correction (e.g., Carroll and Swain, 1993), metalinguistic feedback (e.g., Ellis et al., 2006; Sheen, 2007a) and elicitation (Lyster, 2004) promote learning. These studies on oral CF emphasize the importance of negotiated meaning, learner noticing, and awareness in shaping interlanguage development, and CF in this respect plays a pivotal role.

The significant role that CF plays in second language acquisition and the interest paid to it by researchers are also reflected in the spate of recent meta-analyses of CF studies (Keck et al., 2006; Li, 2010; Lyster and Saito, 2010; Mackey and Goo, 2007; Russell and Spada, 2006). These will be discussed in Chapter 8 (also see Table 8.1). They indicate that the effects of various types of oral CF on L2 acquisition appear to differ somewhat depending on whether the study was carried out in a controlled laboratory setting, where learners typically meet one-on-one with a native speaker/researcher or in a classroom setting. Results by and large show that recasts generally are more effective in laboratory settings than in classroom settings. Explicit CF appears to be effective in both settings.

In the case of written CF, a key issue is whether the effect is examined in terms of learners' ability to revise an initial piece of writing or in a new piece of writing (which arguably serves as a better measure of 'acquisition'). As pointed out earlier, the role of written CF has been hotly debated, leading to a series of studies that have investigated: (a) whether CF has an effect on learners' revised texts; (b) whether CF has an effect on new pieces of writing over time; and (c) whether one type of CF is superior to another type of CF (e.g., direct correction vs. indirect correction, form feedback vs. content feedback). These studies have typically employed quasi-experimental designs (i.e., they investigated intact classrooms where the learner groups were not randomized). They are considered to provide more ecologically valid results than laboratory studies at least where language pedagogy is concerned.

Written CF studies that focused exclusively on the effects that CF had on learners' ability to revise initial drafts have been criticized on the ground that a learner's successful revision does not demonstrate the ability to avoid errors in a new piece of writing. Another criticism leveled against many written CF studies is that they did not include a control group and thus failed to show that students who received written error correction improved their writing skills significantly more than those who received no correction. Without a control group, one cannot say for sure whether any positive improvement in accuracy in learners' new texts is due to CF as writing practice or whether other learning factors might have contributed to the positive effect. Indeed, written CF research has suffered from a number of methodological limitations (e.g., the lack of a control group as in Lalande, 1982; Robb et al., 1986). For this reason, earlier research findings failed to provide clear evidence that

written CF helps learners improve linguistic accuracy over time. However, more recent studies (e.g., Ellis et al., 2008; Sheen et al., 2009) have provided evidence that written CF can promote interlanguage development, thus disputing Truscott's (1996, 1999) claim that written grammar error correction is ineffective and even harmful.

Historically, studies of oral and written CF on L2 acquisition have been conducted independently of each other, although there has been a recent attempt to consider the relative efficacy of oral and written CF (e.g., Ferris, 2010; Sheen, 2010). This book is intended not only to provide a state of the art account of oral and written CF, but also to explore the potential connections between oral and written CF research.

1.7.2 What Types of Corrective Feedback Are Most Effective?

Researchers investigating oral CF have studied implicit vs. explicit feedback. Implicit feedback occurs when there is no overt linguistic signal/marker that an error has been committed. Explicit feedback occurs when there is an overt linguistic signal/marker. They have also investigated input-providing (e.g., recasts) vs. output-prompting feedback (e.g., prompts in the form of elicitation, clarification requests, and repetition of error). In both cases, the studies have targeted just one or two linguistic structures (i.e., they have investigated focused CF). For example, Ellis et al. (2006) investigated the relative efficacy of implicit and explicit CF on adult ESL learners' acquisition of regular past tense by comparing recasts (an implicit type of CF) and metalinguistic comments (an explicit type of CF). Their study was conducted in intact classrooms with international students of intermediate proficiency. They reported no significant effect for both CF types on the immediate posttests but found that the explicit CF group outperformed both the control group and the implicit CF group on the delayed posttests. Sheen (2007b; see also Chapter 4) also found that whereas explicit CF (in the form of metalinguistic comments plus provision of the correct form) resulted in significant gains in learning in both immediate and delayed post-tests, the implicit CF did not. Similar to Ellis et al. (2006), she used intact intermediate level classes of adult learners and in both studies, CF was provided in the context of a communicative activity. Thus, in a communicative second language classroom context, it would appear that explicit CF is more effective than implicit recasts. It should be noted, however, that a number of laboratory-type studies (e.g., Han, 2002) have shown that recasts can also facilitate acquisition.

Examples of recent studies investigating the relative effects of input-providing and output-prompting CF are Lyster (2004) and Ammar and Spada (2006). Lyster (2004) investigated fifth-grade French immersion learners, comparing the effects of recasts (as an input-providing CF) and a mixture of output-prompting CF strategies on the acquisition of gender marking on articles and nouns. The prompt group was the only group to outperform the control group on all eight measures

of acquisition. In another study, Ammar and Spada (2006) compared the effects of recasts and prompts on sixth graders' learning of possessive pronouns in intensive ESL classes. Prompts were especially effective for learners who had pretest scores below 50%, whereas learners with pretest scores above 50% benefited similarly from both recasts and prompts. Taken together, these studies suggest that CF that prompts learners to self-correct is more effective than CF that does not (such as recasts), at least in the case of learners who have already begun to acquire the target feature.

This line of research also makes theoretical claims that input-providing and output-prompting feedback demand different types of processing (Lyster, 2004; Lyster and Izquierdo, 2009; Lyster and Mori, 2006). More specifically, Lyster, drawing on the theory of transfer-appropriate learning which posits that 'the expressing of previous learning will be successful to the extent that the learners' psychological state existing at the time of learning matches that required at the time of expression' (Segalowitz, 1997, p. 105) and argues that prompting feedback is ideally suited to provide this kind of learning opportunity. As mentioned earlier, prompts by definition push learners to produce modified output by attempting to repair their utterance containing the errors. This serves as an ideal form of practice as it arises in the context of communicative interaction where learners are asked to retrieve knowledge that has been partially internalized and, if this practice is repeated, prompts are particularly beneficial as they help learners to automatize the retrieval of existing knowledge and to restructure their interlanguage.

Researchers investigating written CF have compared direct vs. indirect correction, as well as various ways of providing indirect correction and, typically, have addressed a wide range of linguistic error categories (i.e., the studies have investigated unfocused CF). A number of more recent studies (e.g., Bitchener and Knoch, 2008; Ellis et al., 2008; Sheen, 2007a), however, have set out to investigate focused CF. These studies have shown that focused error correction does lead to gains in linguistic accuracy and also that the more explicit the feedback is, the bigger the benefit is for the students. However, these studies have all investigated the same grammatical feature – English articles – so it is not clear whether focused correction will prove generally effective in improving learners' linguistic accuracy. What they do suggest is that written CF, at least when focused on a single feature, can be effective, and that the investigation of written CF is a worthwhile endeavor.

Clearly, written CF is a complex phenomenon (just as oral CF is). A few studies that have investigated written CF from a sociocultural perspective have explored this complexity. Aljaafreh and Lantolf (1994) examined the mediating role of CF (as a scaffolding strategy) that is the kind of assistance that an expert/tutor can provide to assist the learner in completing a task. They show how the degree of scaffolding provided by a tutor's oral feedback on students' writing errors diminished over time and highlighted the fact that this scaffolding was achieved by way of a 'regulatory scale' of implicit and explicit types of CF. For example, a very implicit form of CF involved the tutor indicating that something was wrong in a sentence by saying 'is there anything wrong in this sentence?' while a much more explicit form of

correction involved the tutor providing either the correct form or some explanation for use of the correct form. Aljaafreh and Lantolf found that the help provided by the tutor became more implicit over time and argued that this in itself was indicative of learning.

A more recent study conducted in the sociocultural framework is Storch and Wigglesworth (2010). They investigated why some types of written CF may be more effective than others by reporting case studies that documented ways in which individual learners responded to two different types of written CF as shown in their subsequent texts. Their findings showed that the effectiveness of CF depended on both the type of errors and the learners' proficiency. More importantly, they suggested that individual factors such as learners' attitudes, beliefs and goals, often ignored in written CF research, played an important role in whether learners were able to benefit from CF.

Researchers who work within a sociocultural framework claim that it is not possible to identify one type of CF that is the most effective for all learners, as the effectiveness of CF rests on how it can be tailored to the learner's developmental level (i.e., the Zone of Proximal Development). Lantolf argues that CF needs to be graduated in terms of its explicitness/implicitness. However, this begs the question as to how teachers should accomplish this through written CF when they are faced with an error in a student's written text and have no way of knowing which CF strategy is best suited to address it. In contrast, cognitive theories on CF suggest that it is possible to identify what constitutes a facilitative form of correction for most learners. Clearly, then, the question of what constitutes effective CF is open to different answers. In this book I will be primarily concerned with cognitive accounts of CF but will make reference to more socially-oriented accounts when appropriate.

1.7.3 What Factors Influence the Effectiveness of Corrective Feedback?

Increasingly, attention has been paid to a number of factors which influence the effect of CF (e.g., Mackey's edited volume, 2007a). Research to date has addressed this question by exploring linguistic, contextual and individual learner factors. Lyster (1998b) and Mackey et al. (2000) suggest that recasts of utterances containing grammatical errors (as opposed to vocabulary or pronunciation errors) may be too implicit and non-salient for learners to notice their corrective force and thus are ineffective in producing learner repair and in facilitating subsequent learning. Egi (2007a) investigated learner perceptions following recasts by way of stimulated recall, a research procedure designed to gather introspective data such as learners' thought processes, awareness and noticing. She showed that recasts could be more or less explicit and that whether learners recognized them as corrective depended on their linguistic characteristics. For example, recasts that were partial and short were positively associated with learners' noticing of them as correction. Partial recasts

refer to ones that reformulate the segmented utterance containing the error as in the following exchange between the teacher and a student in Example 1.12:

Example 1.12
S: Yeah, Kal told me your height is rather shorter.
T: Rather short.

While these studies such as in Trofimovich et al. (2007) explored linguistic factors, other studies have explored learner internal factors. They investigated how working memory capacities and grammatical sensitivity influence learner noticing of CF and subsequent learning. Other studies have investigated whether anxiety affects learners' ability to learn from corrective feedback (see Chapter 7).

Recently, a number of meta-analyses of oral CF studies have appeared (Lyster and Saito, 2010; Mackey and Goo, 2007; Russell and Spada, 2006; Li, 2010). These compare the impact of CF evident in a large number of studies in terms of effect sizes and are able to provide a more robust picture of the role CF plays in L2 learning. By and large, these analyses point to the importance of taking into account various moderating factors, such as feedback type (e.g., implicit or explicit), error type (e.g., grammar or vocabulary), interaction type (e.g., one-on-one or whole-class), mode (oral/written/computer-mediated), L2 instructional context (e.g., ESL or EFL), age, gender, proficiency, first language (L1) influence, anxiety, cognitive abilities (e.g., analytic ability, short term memory), which influence the extent to which CF is beneficial to L2 learners. They demonstrate that CF constitutes a highly complex psychological and social activity.

Addressing the numerous factors that can mediate the effectiveness of CF is beyond the scope of this book. Instead, this book will survey the research that has investigated the effects of CF in terms of individual difference factors such as language aptitude, working memory, noticeability, anxiety and learner attitudes.

1.7.4 How Relevant Is Corrective Feedback Research to Language Pedagogy?

The intense interest in CF over the past half century is largely due to the significance it carries for language pedagogy. The key issues facing teachers and teacher educators in developing a policy for conducting CF were identified by Hendrickson in 1978. They have not changed. Hendrickson posed five questions: (1) should learner errors be corrected?; (2) if so, when should learner errors be corrected?; (3) which learner errors should be corrected?; (4) how should learner errors be corrected?; and (5) who should correct learner errors?

Chaudron (1988) reviewed the oral CF research that has addressed these questions arguing that teachers need to take account of what the research has shown about CF. However, differences exist in interpretations of the utility of this research where language pedagogy is concerned. Truscott has drawn on his

own understanding of the research and on SLA theories to question the pedagogical utility of both oral and written CF. In contrast, Long (2007) and Lyster (2007) have presented arguments in support of teachers using CF, while Ferris (2002, 2003) has provided a comprehensive guideline to show how teachers and educators can address learner errors in the context of second language writing pedagogy.

As seen above, while many CF researchers have conducted research of obvious relevance to language pedagogy, the mixed research findings make it difficult to formulate hard and fast recommendations for teachers. However, error correction is a key feature of language teaching in the classroom and so teachers need to make principled decisions about how to conduct it. Methodologists and teacher educators have largely relied on their own experience and common sense in making recommendations to guide teachers (see Folse, 2009). One very important fact that emerges from both the CF research findings and pedagogical commentary is that CF is a highly contextualized phenomenon and thus its effectiveness will depend on the specific educational and social goals of the instruction (Hyland and Hyland, 2006). In other words, CF should be viewed and investigated in terms of specific learning situations. For example, CF might play a more important role in helping university international students to master an academic register than in helping a group of young refugees to learn basic survival language.

Clearly, one of the key contributions CF research has made to date is to highlight the importance of taking into account multiple factors in accounting for how it affects L2 acquisition. These factors include feedback type, error type, and individual learner differences. CF research helps to inform when, how and how often learner errors should be corrected. Thus, corrective feedback is an ideal object of inquiry for researcher-teacher collaboration. It constitutes an area of inquiry that can connect theory, research and practice.

Interestingly, there is a considerable discrepancy between what teacher educators and teachers have had to say about CF and what research has shown. For example, some teacher educators (e.g., Harmer, 2008; Hedge, 2000; Willis and Willis, 2007) have argued that teachers should not interrupt students' efforts to communicate when performing a communicative task by correcting them. They recommend delaying the correction until the communicative task is over. In contrast, Doughty (2001) and Doughty and Long (2003) have argued that corrective feedback needs to be provided within a 'window of opportunity', namely, immediately following the learner′s erroneous utterance. Only then will it have an influence on the cognitive processes involved in language acquisition.

Given the diversity of research traditions that exist in the field of SLA and L2 writing pedagogy, and the theoretical disputations that inform these traditions, it is not so surprising to find a lack of agreement between teacher educators and SLA theorists. This raises the important question of exactly how theory and research can inform the practical advice that is given to teachers regarding CF. One of the goals of this book is to bring together research and the practice of CF. In the concluding chapter of this book, I will address how this might be best achieved.

Appendix 1: Key Terms Frequently Used in the Corrective Feedback (CF) Literature

CF term	Modality	Explanation
Implicit CF	Oral	CF in which there is no overt linguistic signal/marker that an error has been committed
Explicit CF	Oral	CF in which there is an overt linguistic signal/marker such as 'no, Y, not X'
Direct CF	Written	CF in which the correct form is written over or across the incorrect form
Indirect CF	Written	CF in which the correct form is withheld and instead the location of the error is indicated or a metalinguistic explanation is provided
Focused CF	Oral/written	CF that targets just one or two error types, i.e. focusing on past tense or question formation
Unfocused CF	Oral/written	CF that targets a variety of error types
Recasts	Oral	CF that reformulates the learner's erroneous utterance while maintaining its intended meaning
Clarification requests	Oral	CF that signals to the learner that his/her utterance is not well understood
Elicitation	Oral	CF that prompts the learner to reformulate/correct his/her original utterance with a question or a sentence to complete
Repetition	Oral	CF that signals to the learner an error has been committed by repeating their utterance containing the error
Metalinguistic clue	Oral/written	CF that prompts the learner to correct his/her original utterance by providing a metalinguistic comment
Explicit correction	Oral/written	CF that clearly signals to the learner that an error has been committed and provides the correct form
Explicit metalinguistic CF	Oral/written	CF that provides the learner with the correct form together with a metalinguistic comment
Learner uptake	Oral	Learner responses immediately following CF provisions ranging from acknowledgement (e.g. Yeah, ok) to correcting the original error
Learner repair	Oral	Learner uptake that has successfully corrected the original error targeted by the CF

Appendix 2: Transcription Devices

Symbol	Meaning
S or any initial except T	Student
T	Teacher
CAPITALS	Emphasis
(.)	Micropause
=	Linked speech
?	Rising intonation
.	Falling intonation
–	Interrupted speech

Chapter 2
Theoretical Perspectives on Corrective Feedback

2.1 Introduction

Corrective feedback has received considerable attention from SLA theoreticians and researchers because research in this area involves consideration of a key issue in SLA, namely the roles of 'positive evidence' versus 'negative evidence' in language acquisition. These terms refer to the two major types of language input available to learners in acquiring a language: positive evidence is the information available to learners as to what is possible/grammatical in a language, while negative evidence refers to what is not possible/grammatical in a language (Long, 1996). Figure 2.1 shows the different types of positive and negative evidence available to learners, as categorized by Long and Robinson (1998, p. 19).

As seen in Fig. 2.1, language input consists of positive evidence and negative evidence. Negative evidence can be provided to learners *pre-emptively,* when learners are provided with explicit grammar, or *reactively,* when learners commit an error, which is then corrected. Thus, corrective feedback is considered a type of negative evidence (the 'Reactive' branch in Fig. 2.1). The feedback can be *explicit* by providing the learners with the correct form overtly or with metalinguistic information (the 'Overt Error Correction' branch in Fig. 2.1), or it can be *implicit* by reformulating the learner's erroneous utterance, correcting his/her errors while focusing on meaning without an overt focus on linguistic form (as in the 'Recasts' branch in Fig. 2.1). Long and Robinson distinguished recasts according to whether they are 'simple' or 'complex', depending on the number of errors a recast targets; a simple recast singles out one error, whereas a complex recast targets multiple errors.

While there is consensus in the literature about the significance of positive evidence for learning, especially when the input is modified to the level of the language learner to ensure comprehension, there has been much less agreement about the role of negative evidence in language learning. The different views regarding the effectiveness of the negative evidence provided by corrective feedback in promoting language acquisition will be discussed in the following sections.

Corrective feedback can be considered in relation to four theoretical paradigms that have informed SLA research: the Universal Grammar paradigm, the cognitive-interaction paradigm, the sociocultural paradigm and conversational analysis. In the

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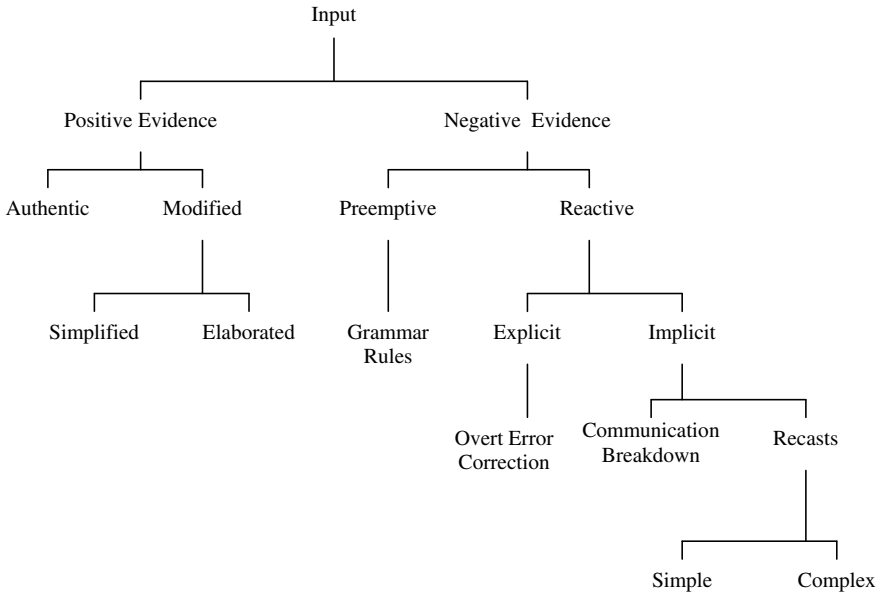


Fig. 2.1 Data for SLA from Long and Robinson (1998)

sections that follow, I will discuss CF in relation to theories drawn from each of these paradigms. It should be noted that the bulk of the research on CF to date (including my own research) has been based on cognitive-interaction theories, although there is increasing interest in sociocultural theoretical accounts of CF and in the use of conversational analysis to pursue these.

It should also be noted that SLA theories have addressed the role of oral corrective feedback and only more recently written CF. In fact, oral and written CF have traditionally been treated as separate phenomena. For these reasons, I will consider theoretical perspectives mainly in relation to oral CF. Later in this chapter, however, I will address the relevance of SLA theories to written CF.

2.2 UG (Universal Grammar)-Based Accounts of Corrective Feedback

The goal of UG-based second language acquisition research is to investigate whether a learner's interlanguage is constrained by Universal Grammar (UG) – the set of principles that underlie any single natural language and that constrain the form that linguistic competence in that language can take. These principles are universal but many are parameterized, that is, they can take a number of different forms. The investigation of L2 acquisition in this theoretical framework involves establishing whether learners can reset parameters that differ between the L1 and the L2, and

whether they can construct representations involving features not present in their L1s (i.e., whether they still have access to UG).

UG theories of L2 acquisition are based on the poverty-of-the-stimulus argument. This provides an 'explanation of how it is that learners come to know properties of grammar that go far beyond the input' (White, 2003, p. 20). The explanation is UG. However, if learners are able to make use of the negative evidence available through corrective feedback to build their L2 grammars, then the input can no longer be viewed as impoverished and the essential ground for claiming that UG guides L2 acquisition would no longer exist. Given that CF clearly is available to learners (at least in a classroom setting), the case for UG-based theory of acquisition can only survive if it can be shown that learners are unable to make use of CF.

The key issue involving CF in a UG-based theory, then, is the role of negative evidence. This refers to evidence that a specific linguistic feature is incorrect and contrasts with positive evidence, which is available through the input that learners receive. UG theorists argue that negative evidence is typically not available to the L1 learner. However, there is increasing evidence that negative evidence is available, usable, and actually used by L2 learners, thus satisfying the three tests that Pinker (1989) set for CF to have any role in acquisition. The key issue, then, is whether negative evidence can play a role in L2 acquisition or whether learners need to rely entirely on positive evidence, as is claimed to be the case in L1 acquisition. There are a number of different positions.

One position is that negative evidence is beneficial to L2 learning because it enables learners to acquire grammatical properties that would otherwise be lost due to the fact that they do not have continued access to UG. This is the view that White (1991) adopted. An alternative position, associated with Schwartz (for example, Schwartz, 1986; Schwartz and Gubala-Ryzak, 1992), is that UG can be activated only by means of positive evidence and that negative evidence, therefore, plays no role in UG-based acquisition. Schwartz acknowledged that negative evidence can result in the acquisition of explicit grammatical knowledge, but argued that there is no mechanism that can 'translate' this knowledge into input of the type required by UG (i.e., implicit knowledge). A third position is that negative evidence can play a role in certain stages of L2 development but not others. Carroll (1997, 2001) argued that for corrective feedback to contribute to L2 acquisition, it is necessary to assume that linguistic cognition is modular, and thus is not dependent entirely on UG. Rather, it involves an interaction between UG and other cognitive faculties. She proposed that corrective feedback must be interpretable. She sought to demonstrate that it is not interpretable at the beginning stages of L2 learning, as learners lack the metalinguistic awareness that is essential for processing corrective feedback and, also, that it is not effective at an advanced stage because correctors are less able to discern errors since these generally do not cause communication problems. She concluded that as negative evidence via corrective feedback is only available and usable in the intermediate stages of development, it is unlikely that it plays a central role in a general theory of L2 acquisition.

To sum up, UG-based accounts of L2 acquisition do not view CF as playing a major role. It is typically seen as potentially contributing to the development of

explicit knowledge but not to that of implicit knowledge (which UG seeks to account for). Even where explicit knowledge is concerned, its contribution may be limited to helping intermediate level learners.

2.3 Cognitive Theories of Oral Corrective Feedback

In contrast to UG-based theories, cognitive theories see CF as making a substantial contribution to the acquisition of both implicit and explicit L2 knowledge. The main theoretical perspectives are the Interaction Hypothesis (Long, 1983, 1996)/Interaction Approach (Gass and Mackey, 2007), the Output Hypothesis (Swain, 1985, 1995), the Noticing Hypothesis (Schmidt, 1994, 2001), Skill-Learning Theory (DeKeyser, 1998, 2007a), Transfer Appropriate Processing (Segalowitz and Lightbown, 1999) and the Counterbalance Hypothesis (Lyster and Mori, 2006). While these hypotheses/theories/approaches are not mutually exclusive, we will consider how each of these has informed CF to date.

2.3.1 Interaction Hypothesis

The Interaction Hypothesis Long proposed is a development of Krashen's (1982) input hypothesis. Krashen (1981) distinguishes 'acquisition' from 'learning'. Acquisition is a subconscious process involving informal and implicit learning (as in how children 'acquire' their first language), while learning is a conscious process that results from explicit instruction, including error correction. Krashen asserts that the knowledge obtained from learning cannot be converted into acquired knowledge (i.e., he supports a non-interface position). Within the framework of the Input Hypothesis (Krashen, 1982, 1985), then, error correction contributes little, if anything, to language acquisition since it only caters to developing explicit knowledge, not implicit knowledge (i.e., linguistic competence). Krashen (1981) contends that comprehensible input is 'the only causative variable in SLA' (p. 57). According to Krashen, comprehensible input serving as positive evidence is sufficient to acquire a second language.

Krashen's view of corrective feedback has been challenged by Long (1983, 1996). Long (1983), in his early formation of the Interaction Hypothesis, asserts that interlocutors' attempts to make their speech comprehensible will result in the negotiation for meaning characterized by modifications in the interactional structure of conversation. He further argues that natural input (i.e., positive evidence) is insufficient for learners to acquire a second language. He emphasizes the importance of interactionally modified input that arises from the negotiation for meaning between native speakers/language teachers and nonnative speakers/language learners in communicative contexts. This can be illustrated by the following chain: comprehension problem → negotiation of meaning → comprehensible input → acquisition. Long (1983) also posits the following three steps to test his hypothesis: (1) show that

conversational adjustments promote acquisition; (2) show that comprehensible input promotes acquisition; and (3) deduce that conversational adjustments assist acquisition. In the early version of the Interaction Hypothesis, corrective feedback played no role, as Long focused on the role that negotiation of meaning plays in providing the learner with comprehensible input rather than in the role it can play in providing the learner with evidence of target language norms.

In Long's (1996) updated Interaction Hypothesis, however, corrective feedback (especially recasts) is seen as contributing to acquisition. The negotiation of meaning is now defined as follows:

> the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content, or all three, until an acceptable level of understanding is achieved (p. 418).

Related to the Interaction Hypothesis is the notion of 'focus-on-form'. Long (1991) defines focus-on-form as an instructional intervention that 'overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication' (pp. 45–46). It arises out of negotiation for meaning in that it 'consists of an occasional shift of attention to linguistic code features–by the teacher and/or one or more students–triggered by perceived problems with comprehension or production' (Long and Robinson, 1998, p. 23). This creates an opportunity for 'cognitive comparison' (Ellis, 1992) in the learner's mind that, in turn, facilitates change in the learner's interlanguage system. Long claims that recasts, one of the strategies involved in the negotiation for meaning, are the best candidate for focusing attention on form because they connect 'input, internal learner capacities, particularly selective attention, and output in productive ways' (1996, p. 451). Therefore, in this interactionist framework, corrective feedback (and recasts in particular) is seen as important for acquisition.

However, it can be argued that Long's view of the role of negative feedback is somewhat narrow. Long (1996, 2006) has consistently claimed that negative feedback arising from the negotiation for meaning is ideal for facilitating acquisition as it encourages form-function mapping during communication. He contends that explicit forms of corrective feedback that treat language as an object are unlikely to assist learning because they interrupt the flow of communication and thereby discourage a joint focus on form and meaning. For Long, then, for corrective feedback to be effective, learners need to jointly attend to form and meaning. Such a position, however, is problematic for two reasons. First, in a classroom context, it is often not clear whether the feedback is 'conversational' (i.e., originates in a communication breakdown), as Long desires, or whether it is 'didactic' (i.e., originates in the teacher electing to treat the error as an 'object' in need of correction). Second, in many classroom teaching contexts, didactic corrective feedback is much more common than conversational feedback as communication problems (in Long's sense) arise only rarely (see Ellis et al., 2001; Foster, 1998). What typically occurs is the negotiation of form where the teacher and learners have brief time-outs from communication in order to treat language as an object.

With this criticism aside, Long's position has received considerable support in the literature. Pica (1994) points out that when learners receive implicit negative feedback on their attempts to communicate, they may attempt to reformulate their initial utterances, thereby promoting acquisition. From a cognitive linguistic perspective, Doughty (2001) argues that corrective feedback, especially in the form of recasts, provides learners with an opportunity to engage in form-meaning mapping, which they otherwise might not undertake. Gass (1997) and Mackey (1999) also argue that acquisition occurs as a result of the input and interaction arising from communication between interlocutors. Lightbown (2002), in her state-of-the-art paper on SLA, contends that corrective feedback is one of the most important factors for ensuring second language learning success in the classroom.

2.3.2 Output Hypothesis

Swain (1985, 1995, 2000) proposed the Output Hypothesis as a complement to the Input Hypothesis. She argues that while interactional negotiation is important for the 'comprehensible input' it affords the language learner, interactional exchanges also create opportunities for 'comprehensible output', which is also important for language acquisition. She asserts that when learners are required to produce 'pushed' output, they are forced to engage in not only semantic processing but also syntactic processing. Swain's claim originated in empirical studies of French immersion classrooms (e.g., Harley, 1989; Harley and Swain, 1978), which showed that immersion learners generally failed to acquire certain grammatical forms despite plenty of comprehensible input. If comprehensible input by itself was sufficient to achieve successful language acquisition, as Krashen (1982) argues, then, these immersion learners ought to have been successful. The fact that they were not successful led Swain to argue that this was because the immersion classroom did not provide them with sufficient opportunities for pushed output.

Swain (1995) identified three functions of output in L2 acquisition. First, output helps learners to notice the gap between what they want to say and what they can say. Second, it serves as a means of testing hypotheses about the use of specific linguistic forms. Third, output may help learners to develop knowledge about language (metalanguage) and understand the rules of language. Thus, Swain argues that corrective feedback, such as clarification requests, promotes pushed output and thereby enables learners to advance their interlanguage.

Evidence for this comes from a small-scale study by Nobuyoshi and Ellis (1993). They reported that when learners made errors in the use of past tense verbs and received corrective feedback in the form of clarification requests, some of the learners modified their output by self-repairing their errors and, subsequently, showed improved accuracy in the use of the past tense in a later task.

In subsequent research, Swain's notion of 'pushed-output' has been directly related to the utility and efficacy of corrective feedback on the grounds that feedback that elicits learner self-repair is more likely to enable learners to move from

comprehension to meaningful production (Lyster, 2004; Lyster and Ranta, 1997). The notion of 'uptake' (defined as a learner's oral response immediately following CF) plays an important role in this respect. Uptake is optional output on the learner's part. It is hypothesized to be linked to noticing and subsequent learning. The opportunity for pushed-output afforded by CF results in a higher rate of uptake and thereby potentially optimizes the learning potential. This line of research suggests that corrective feedback strategies that do not require learners to undertake self-repair (e.g., explicit correction and recasts) are inferior to strategies that encourage self-repair (e.g., requests for clarification).

2.3.3 Noticing Hypothesis

Other researchers have staked out claims about the acquisitional value of corrective feedback on the basis of Schmidt's (1990, 1994) Noticing Hypothesis. The incubation of the Noticing Hypothesis dates back to a case study of Schmidt himself as an American learner of Portuguese in Brazil (Schmidt and Frota, 1986). Using self-reported and tape-recorded data, Schmidt and Frota investigated how instruction, interaction, and correction influenced R's learning of Portuguese. They found that the target features in the input that R had consciously attended to during his interaction with native speakers were almost always acquired. Conversely, R failed to learn target forms that he had failed to notice in the input. This led Schmidt and Frota to suggest that *noticing* is a conscious process necessary for learning: learners must notice a mismatch between their interlaguage form and the target form. They referred to this phenomenon as 'noticing the gap,' a construct that since then has become widely accepted in the SLA literature (Gass and Selinker, 2008). According to the Noticing Hypothesis, corrective feedback works by helping learners to notice the gap between interlanguage forms and target forms, thereby assisting in interlanguage development.

Similarly, Sharwood Smith (1991) has presented a theoretical framework in which learners need to notice and attend to linguistic forms. He contends that while learning a language through natural exposure is crucial for acquisition, doing so will take a long time. Rutherford and Sharwood Smith (1985) argued that deliberate attempts to draw learners' attention to the linguistic features of the L2 by way of '*input enhancement*' are necessary and suggested that this can be achieved by various techniques such as underlining, bolding or capitalizing target forms in order to make them perceptually salient in the input. Doughty and Williams (1998) classify this kind of input enhancement as an unobtrusive means of providing focus-on-form, which leads to learners noticing linguistic forms that would not otherwise be attended to. Input enhancement is usually considered in relation to input-based activities but, arguably, it is equally relevant to corrective feedback. In fact, CF can be viewed as a form of input enhancement – one that is ideally suited to induce learners to pay attention to linguistic features that are problematic for them. This suggests that the perceptual saliency of corrective feedback (as negative input) is an important factor in determining its effect on learning.

The three major hypotheses considered above have contributed to what Gass and Mackey (2007) now refer to as 'the interaction approach' which 'attempts to account for learning through the learner's exposure to language, production of language, and feedback on that production' (p. 176). In support of the Interaction Hypothesis they point out that there is now a robust body of evidence to show that interaction and learning are linked through learner internal cognitive mechanisms such as noticing, working memory and attention, and that the real issue now is to unfold the complex nature of this linkage and to explain its process.

There is now a considerable body of interaction research that has investigated the role CF plays in enhancing the acquisitional value of interaction (e.g., Mackey, 2007a, 2007b; Mackey and Gass, 2006). This demonstrates that CF has a significant place in SLA theory building. This work is also of considerable relevance to language pedagogy, where, as we will see in Chapter 3, CF is viewed as an important means by which teachers can help learners to achieve greater linguistic accuracy.

Interaction research drawing on the Interaction Hypothesis, Output Hypothesis and Noticing Hypothesis has been the dominant approach in SLA for almost three decades. In recent years, however, there are other theories that have increasingly figured in SLA research and that have addressed CF. We will consider these next.

2.3.4 Skill Learning Theory and Transfer Appropriate Processing

Another line of cognitive SLA research that has informed the role of CF draws on skill learning theory, according to which, L2 learning is not different from acquiring other complex cognitive skills (such as mathematics and physics) or psychomotor skills (such as basketball and swimming). Skill learning theory posits that L2 learning is driven by a general learning mechanism and that such second language 'skills' can be acquired through three major stages (DeKeyser, 2007a, b). More specifically, learners improve their L2 performance by (1) first obtaining declarative knowledge, (2) next proceduralizing it and (3) finally automatizing it. Declarative knowledge (knowledge 'that') contrasts with procedural knowledge (knowledge 'how'). The former consists of explicit knowledge of grammar rules and the latter involves the development of implicit knowledge that is required to perform without conscious effort. Automatization is the last stage where learners' cognitive demands become minimized so that L2 skills are fully mastered. This model places an emphasis on the role of 'practice' in helping learners to gradually progress from the declarative to the automatic stage. It is this practice where CF comes into play. CF in its various forms can provide learners with the opportunity to practice their language skills. One of the key researchers working in this framework is Lyster (2004). He argues that output pushing CF types, such as clarification requests or elicitations are superior to input providing CF types, such as recasts or explicit correction on the grounds that the former types help learners to proceduralize the knowledge that they have not yet mastered. Contrary to Long's (2007) view of L2 acquisition as the acquisition of new linguistic knowledge, Lyster emphasizes the importance of learners automatizing

the linguistic knowledge they have already partially acquired. He argues that the ideal way to ensure this learning opportunity for learners is through prompting self-correction, a theoretical claim that is grounded in skill learning theory.

Researchers advocating skill learning theory also propose a strong interface between explicit knowledge and implicit knowledge because, they argue, explicit knowledge can convert into implicit knowledge through practice. It follows then that explicit CF (e.g., metalinguistic CF) is of value as it aids learners to acquire declarative knowledge at the initial stage, which later may become implicit knowledge. However, for those learners who are at the middle or later stage, it is output-pushing CF that is needed. However, those learners who are far short of stage (3) -outlined above- may not be able to benefit from output-prompting CF types.

Closely linked to the skill acquisition theory is Transfer Appropriate Processing (TAP). This affords a number of important implications for conducting CF. Segalowitz and Lightbown (1999, p. 51) note:

> . . . according to the principle of transfer appropriate processing, the learning environment that best promotes rapid, accurate retrieval of what has been learned is that in which the psychological demands placed on the learner resemble those that will be encountered later in natural settings.

According to Lightbown (2008), TAP addresses how we retrieve linguistic knowledge in actual performance. It claims that linguistic knowledge is stored in relation to the context in which it was learned. Evidence for this comes from Morris et al.'s (1977) study. This showed that the participants were most successful in retrieving new words based on the rhyming words provided in the learning condition when the learning and retrieval conditions were comparable. Thus, if L2 knowledge is learned in the context of an instructional drill, it will be available for use only in the same kind of language use – i.e., when the learner is focused on accuracy and can engage controlled processing of the learned features. Conversely, if L2 knowledge is learned through communicative activity, it becomes available for use in communication. It follows that if the goal is to develop communicative ability, learners need opportunities to practice in a communicative context.

What then are the implications of TAP for CF? In fact, two very different implications can be drawn. First, if learners are primarily focused on meaning, CF may not be effective as the context of use makes it irrelevant. Bjork (1994) goes as far as to suggest that in such contexts teachers should not bother unduly with providing feedback. Lightbown considers this proposal 'surprising' but goes on to explain, 'If there is constant external feedback, learners may cease to notice it in the teacher's language, especially if the general learning environment is one in which there is pressure to focus on meaning rather than language form' (p.41). This provides an explanation for the well-established finding that learners in immersion contexts fail to repair their errors following teachers' recasts (Lyster and Ranta, 1997).

However, a second implication of TAP is that the effectiveness of CF in such contexts will depend on the type of CF provided. If the CF serves a clear communicative function and also applies communicative pressure on the learner, it can facilitate learning. The type of CF most likely to achieve this is output-prompting

CF. Unlike recasts, feedback consisting of elicitations and clarification requests cannot be ignored by the learner; they require a response. In other words, uptake is necessary for the communication to proceed. Further, output-prompting CF affords a context in which learners can retrieve their existing knowledge of the target forms under communicative conditions. Thus, in accordance with TAP, it is more likely that the increased control over existing knowledge that results from such CF will enable learners to perform more accurately in subsequent communicative activities. This is exactly what Lyster's research (Lyster, 2004, 2007; Yang and Lyster, 2010) has shown.

Ultimately, transfer of learning will depend on how the learners themselves construct the context of an instructional activity. If they construct it as accuracy-oriented, recasts may be effective as they will be ready to attend to them. Sheen (2004), for example, has shown that uptake (including uptake with repair) following recasts is much more likely to occur with adult ESL and EFL learners, who are generally inclined to attend to form, than it is with young immersion learners, who are primarily meaning-oriented. This suggests that the type of CF that will prove most effective will depend on learners' orientation. The Counterbalance Hypothesis, which we will consider next, makes precisely this claim.

2.3.5 Counterbalance Hypothesis

Lyster and Mori's (2006) Counterbalance Hypothesis predicts that L2 learning will be enhanced if pedagogical intervention (either form- or content-focused) runs counter to their preferred classroom orientation. In other words, effective instruction for a form-oriented group needs to encourage communication and vice-versa.

In their comparative study of two types of immersion classrooms (French vs. Japanese in Canada), Lyster and Mori (2006) found that despite very similar CF patterns employed by the teachers in both classrooms, learners' uptake and repair differed: Japanese immersion classroom learners made much more frequent repairs following recasts (a type of CF readily compatible with meaning-focused instruction) than their counterparts, whereas French immersion classroom learners repaired errors following prompts (as 'form'-focused CF) much more frequently than their counterparts. These findings led Lyster (2007) to posit that 'learners in form-oriented classrooms with regular opportunities for focused production practice and an emphasis on accuracy are primed to notice the corrective function of recasts. In these classrooms, recasts have the potential to play unequivocally their double role as both corrective and pragmatic moves' (p.132); whereas '[i]n meaning-oriented classroom that do not usually provide opportunities for controlled production practice with an emphasis on accuracy, learners may detect the overtly corrective function of prompts more easily than the covert signals they need to infer from recasts' (p. 133).

Among the cognitive SLA theories considered above, the Counterbalance Hypothesis differs from the rest in that it originated in the study of how teachers and learners enact CF in real classrooms. It acknowledges that CF is not monolithic but varies from one context to another.

2.4 Sociocultural Theory

Sociocultural Theory (SCT) draws on the work of Vygotsky and his colleagues. It has been increasingly prominent in recent years. SCT researchers conceptualize the role of interaction and CF in L2 learning very differently from researchers in the cognitive-interactionist tradition. In this section, I will discuss several key constructs in SCT that are relevant to their accounts of corrective feedback and L2 acquisition: Mediation, regulation, internalization and Zone of Proximal Development (ZPD).

In Sociocultural Theory, learning is a socially mediated activity that enables learners to achieve higher order mental functioning. In other words, we learn an L2 by participating in social interaction, which mediates our mental activity. The notion of 'mediation' is central in SCT. Lantolf and Thorne (2007) state: 'human mental functioning is fundamentally a mediated process that is organized by cultural artifacts, activities, and concepts' (p. 201).

According to Lantolf and Thorne (2007), the ultimate goal for learning is to develop 'self-regulation'. Learning progresses through three stages: (1) object-regulation in which objects are used to mediate mental activities; (2) other-regulation in which varying degrees of assistance are provided by others, such as parents, peers, teachers, to enable learners to perform functions that they cannot perform independently; and (3) self-regulation where activities are accomplished without any assistance. Aljaafreh and Lantolf (1994) and Lantolf and Aljaafreh (1995) viewed CF as a form of mediation that helps learners to achieve self-regulation (i.e., learners are helped to self-correct and subsequently learn how to use a feature correctly without assistance).

In SCT, language development involves 'the internalization of the mediation that is dialogically negotiated between the learner and others that results in enhanced self-regulation' (Lantolf and Thorne, 2007, p. 215). Internalization is defined as 'a negotiated process that reorganizes the relationship of the individual to her or his social environment and generally carries it into future performance' (Winegar, 1997, p. 31 cited in Lantolf and Thorne). CF constitutes one of the forms of mediation that facilitates internalization. Ohta (2000a), drawing on Aljaafreh and Lantolf's (1994) research, outlined different levels of internalization in the context of one-on-one tutoring involving CF on learner errors (see Table 2.1).

Another key construct is the Zone of Proximal Development (ZPD), defined as a psychological space in which learners can perform a language skill with assistance from others when they are unable to do so independently. The aim of instructional mediation is to provide the learner with the least assistance that he/she needs in order to perform a specific function. Too little or too much assistance and no ZPD is constructed and self-regulation is not promoted. According to this view, CF needs to be tailored to the developmental needs of individual learners and thus one type of CF that works for one learner might not work for another learner. SCT researchers argue that it is mistaken to try to identify a specific type of CF (be it implicit vs. explicit, recasts vs. prompts, or direct vs. indirect) as the 'ideal' type. No one type of CF can be considered the most effective for promoting learning. What is important is accommodating to individual learners' ZPDs (Lantolf and Aljaafreh, 1995).

Table 2.1 Transition from interpsychological to intrapsychological functioning (Taken from Ohta, 2000a, p. 75)

Levels of internalization from interpsychological to intrapsychological functioning	
Level 1	The learner is unable to notice, or correct the error, even with intervention.
Level 2	The learner is able to notice the error, but cannot correct it, even with intervention, requiring explicit help.
Level 3	The learner is able to notice and correct an error, but only with assistance. The learner understands assistance, and is able to incorporate feedback offered.
Level 4	The learner notices and corrects an error with minimal, or no obvious feedback, and begins to assume full responsibility for error correction. However, the structure is not yet fully internalized, since the learner often produces the target form incorrectly. The learner may even reject feedback when it is unsolicited.
Level 5	The learner becomes more consistent in using the target structure correctly in all contexts. The learner is fully able to notice and correct his/her own errors without intervention.

A sociocultural view of CF is well represented in Aljaafreh and Lantolf's (1994) study of corrective feedback and Poehner and Lantolf's (2005) account of 'dynamic assessment'. While these together with other SCT-related CF studies will be reviewed in Chapter 4, an example from Aljaafreh and Lantolf's (1994) research with three female ESL writers is provided here in order to illustrate how CF is viewed in the SCT paradigm. Aljaafreh and Lantolf illustrated how the tutor (Aljaafreh himself) varied the specific CF strategies he used with a tutee. For example, as seen in this excerpt, he initially used indirect clues, such as 'What's wrong here?' and then subsequently tried using metalanguage to help the learner solve the linguistic problem. When this failed, he resorted to a more direct CF strategy by pointing to the error and using direct clues, such as 'what's the right form?' Through this assisted performance, the tutor enabled the tutee to perform beyond his actual level of development. This exchange demonstrates how the tutor assisted the process of internalization by helping the learner to construct a ZPD.

Tutor: Okay, "I called other friends who can't went do the party." Okay, what is wrong here?
Tutee: To.
Tutor: "Who can't went do the party because that night they worked at the hospital." Okay, from here "I called other friends who can't went do the party." What's wrong in this?
Tutee: To?
Tutor: Okay, what else?... what about the verb and the tense? The verb and the tense...
Tutee: Could.
Tutor: Okay, here.
Tutee: Past tense.
Tutor: All right, okay, "who 'alright' could not." Alright? And?...
Tutee: To.

Tutor: Here [points to the verb phrase], what's the right form?
Tutee: I... go
Tutor: Go. Okay, "could not go to [that's right] to the party..."
(Taken from Aljaafreh and Lantolf, 1994, pp. 478–479)

It should be noted, however, that the evidence for learning they presented in their study consisted of showing that the learner needed less assistance to self-correct errors over time (i.e., the level of assistance needed gradually reduced). Aljaafreh and Lantolf (1994) commented: 'Analysis of the interactions showed changes in grammatical competence that illustrated learners were moving from the need for other-regulation provided by the tutor to the partially completely self-generated capacity to notice and correct errors in written production'(p. 467). However, it can be argued that L2 learning is incomplete until it can be shown that self-regulation is finally achieved, that is, the learner is able to use the linguistic target correctly without assistance in an entirely new context. To the best of my knowledge, SCT researchers have rarely tried to show this, preferring just to operationalize learning in terms of a reduction in other-regulation.

Perhaps, though, SCT's view on what constitutes L2 learning is best understood within its own paradigm. As Donato (2000) emphasizes, classroom interaction should be viewed as 'mediated collaboration' in which teachers and learners create affordances for learning within the learners' zones of proximal development. He argued that cognitive SLA theories have an overly narrow view of classroom interaction as 'implicit or explicit instruction, programmed input to the learner, or the individual's unassisted and unmediated discoveries about language form and function' (p. 45).

In short, SCT reconceptualizes interaction as a discursive social activity and in so doing explains how social interaction is responsible for individual learning. As Vygotsky (1989, p. 61, cited in Donato) put it, 'social interaction actually produces new, elaborate, advanced psychological processes that are unavailable to the organism working in isolation'. A good example of how this takes place can be found in Ohta's (2000a) demonstration of how L2 development take place through social interaction (also see Section 4.6.1)

Lastly, SCT researchers have challenged the Interaction Hypothesis (i.e., the importance of engaging learners in the 'negotiation for meaning'). Foster and Ohta (2005) raised questions about the conversational markers commonly used as evidence of negotiation or noticing in interaction. Their study revealed that the requests for clarification usually seen by interactionist researchers as markers of 'negotiation for meaning' can just as easily indicate requests for repetition or observation of social etiquette. Taking both an interactionist and sociocultural perspective on examining the same classroom data, they demonstrated that learning can occur without negotiation for meaning in the context of peer assistance. Foster and Ohta suggested that negotiation for meaning should only be seen as just one of several interactive means rather than the central means for assisting second language development. In other words, from this sociocultural perspective, communication breakdown is not

a necessary condition for learning to occur. In their view, the Interaction Approach can be criticized because of its overemphasis on the role of meaning negotiation.

2.5 Conversational Analysis

Corrective feedback has also been addressed by researchers working within the framework of Conversational Analysis (CA). Since Firth and Wagner's (1997) criticism of the mainstream SLA model (i.e., the cognitive-interactionist approach) and their call for its reconceptualization, there has been a healthy debate concerning the application of CA to SLA (e.g., Firth and Wagner, 1998; Gass, 1998; Kasper, 1997; Long, 1997; Markee, 2000; Van Lier, 2000). The major criticism advanced by Firth and Wagner is that mainstream SLA researchers have neglected the social and contextual aspects of language use and that their accounts of L2 acquisition focus exclusively on the cognitive and psycholinguistic mechanisms of individual learners.

CA has figured strongly in the recent SLA literature as reflected in Markee and Kasper's (2004) term, 'CA for SLA'. CA researchers attempt to reveal the basic structure of classroom discourse by contrasting it with that of naturalistic settings (Lorscher, 1986), and painstakingly transcribing and micro-analyzing repair sequences in classroom interaction (Seedhouse, 1999). In so doing, they are primarily interested in uncovering how participants in conversational exchanges co-create their interactions on a moment-by-moment basis. Seedhouse (2004) notes that the purpose of CA is to 'characterize the organization of interaction by abstracting from examplars of specimens of interaction and to uncover the emic logic underlying the organization' (p. 13). To this end, Seedhouse (1997) collected an extensive classroom database by drawing on a number of published CF studies. Utilizing an emic approach to analyzing the classroom interactions, he identified the multiple social and contextual factors that helped to shape them. He was able to show that pedagogical exchanges in classroom discourse are dissimilar to those that occur in natural conversation.

Seedhouse (1997) analyzed the written transcripts and video and audio sources of some 330 lessons involving learners with 6 different L2 s from 11 different countries in order to document the conversational structure of 'repair' sequences. He noted that while the pedagogical context is often assumed to be characterized by explicit forms of feedback (e.g., 'yes, right' for positive evaluation or 'no, wrong' for negative evaluation), such CF rarely occurred. What he found instead was that teachers avoided the use of such overt, non-mitigating, negative evaluation by employing a variety of corrective strategies of a more indirect kind. One such strategy was 'provide an explanation of why the answer is incorrect without explicitly stating that it is incorrect' (p. 557), as illustrated in this example:

T: Fine, right. The doctor's office. What do we call a doctor's office in English? Go on, Louisa fine, say it.
L: Consult-consultation.
T: It's a consultation that they are going to give, it's a very good try, a good try. WE call it a surgery, a surgery.

Another common strategy was 'accept the incorrect forms and then supply the correct forms' (p. 557), as in the example below:

L: When did Fred joined army?
T: That's right. Only when did Fred join the army?
When did Fred join the army? Say it again.

Seedhouse argued that the intended instructional purpose of such repair sequences was in direct opposition to the interactional message. That is, the teacher wished to correct the learner but in fact was signaling acceptance of what the learner had said. He concluded by proposing that it would be better if instructional intervention worked in tandem with the interactional organization of classroom discourse, not in opposition to it.

Seedhouse (2004) continued to explore the potential contribution of CA to CF research by examining the CF strategy that has figured most strongly in SLA research – recasts. Using examples taken from Long et al. (1998), he illustrated the danger of analyzing 'turn sequences' in purely quantitative terms (as is common in CF research). He argued for the need to conduct 'an emic, holistic analysis of each extract as an instance of discourse in its own right' and for the importance of 'generating any definitions used in a study inductively, bottom-up from the data' (p. 48). Submitting Long et al.'s corrective recasts to conversational analysis, Seedhouse pointed to four fundamental problems: (1) the turn coded as corrective recast is in fact no longer a CF type, (2) the coded 'recast' turns have very different discoursal features in action, (3) it is not clear whether learners recognize the turns as correction, and 4) what transpires when learners actually perform a task (the task-as-process) may not match what was intended by the task-as-workplan. Therefore, it cannot be assumed that the recasts that arise in the activity that results from a task are in fact corrective.

These criticisms, however, do not refute the acquisitional value of recasts for L2 learning. Seedhouse is quick to point out that there is general agreement that recasts can assist learning. His main point is that there is a need 'to explicate the reflexive relationship between pedagogy and interaction and hence how learning takes place through the interaction' (Seedhouse, 2004, p. 243). CA constitutes a theory and method of analysis that points to the danger of treating CF as a monolithic phenomenon that can be neatly classified into a discrete number of quantifiable types.

2.6 Second Language Writing and Written Corrective Feedback

This section considers how written CF has figured in the context of L2 writing and writing pedagogy. To do this, it is important to distinguish 'feedback on writing' and 'written corrective feedback'. The former is a comprehensive term encompassing content, rhetoric/organization, mechanics, fluency, complexity and accuracy, whereas the latter typically involves addressing errors in spelling, lexis and grammar. In accordance with the aim of this book, I will be concerned only with written

CF, i.e., the CF which targets lexico-grammatical errors. Therefore, I will limit the scope of my consideration of theories of L2 writing to those theories that specifically address the role of CF. These theories identify two different roles for written CF – as helping to develop learners' writing skills and as a source of data for L2 acquisition. I will consider each of these in turn.

2.6.1 Role of Corrective Feedback in L2 Writing Development

Whereas SLA researchers are concerned mainly with how CF can assist learners' acquisition of an L2, L2 writing researchers, like L1 writing researchers, have been more concerned with how feedback (including corrective feedback) aids literacy/writing development (Leki, 2000). I will discuss a number of pedagogical theories and consider the role that written CF plays in them.

2.6.1.1 Structural Approach

This approach views L2 writing as the orthographic representation of lexical and syntactic features of L2 speech. It claims that to become a good writer, learners need to first master grammar. Thus, linguistic accuracy constitutes the critical measure of L2 learners' writing. The structural approach involves a four stage process (Hyland, 2003, p. 4):

1. Familiarization: Learners are explicitly taught grammar and vocabulary, usually through reference to a text.
2. Controlled writing: Learners manipulate fixed patterns, often by means of substitution tables.
3. Guided writing: Learners imitate model texts.
4. Free writing: Learners use the patterns they have developed to write an essay, letter, etc.

The way in which the structural approach conceptualizes L2 writing reflects behaviorist views of L2 learning, which were dominant in the 1960s. Developing writing skills involves correctly producing grammatical patterns in controlled exercises designed to minimize errors. Corrective feedback is provided whenever errors occurred.

This approach has been heavily criticized for a number of reasons: it focuses on the surface product (i.e. the production of a linguistically accurate written text); it prescribes and proscribes the writing patterns the learners are supposed to use; it focuses on accuracy at the expense of communicative purpose; it pays scant attention to how the audience and the purpose for writing shape a written text; and it fails to recognize that texts vary according to genre. Nevertheless, as Hyland (2003) notes, many principles of the structural approach are still favored in the L2 writing classroom, especially as a way of boosting beginner learners' confidence in their writing skills.

2.6.1.2 Process Approach

These criticisms of the structural approach led to the rejection of the view that the goal of writing instruction was to ensure learners achieved a perfect product involving the accurate use of linguistic rules and to place an emphasis on the process of writing. Process writing has become the major paradigm in L2 writing instruction and also dominates in L1 and L2 writing research (Hedgcock, 2005). Seen as the ideal way to develop learners' writing skills (Susser, 1993; Zamel, 1982, 1983), the model requires L2 writers to go through various stages from pre-writing, drafting, feedback, revising and editing, reflecting the recursive and nonlinear processes involved in arriving at a final written product (Ferris and Hedgcock, 2005). The emphasis is not placed on linguistic accuracy and L2 written texts, but rather on the L2 writers themselves as they work through the phases of writing. It is only in the final editing stage that attention to grammatical accuracy is required.

This view of L2 writing minimizes the role of written error correction in L2 writing classes. Some proponents of process writing consider such correction to properly belong to the domain of grammar teaching (Zamel, 1987). However, as this approach is heavily influenced by L1 writing theories, other researchers have questioned its relevance to L2 writing (Hinkel, 2004; Silva, 1993). For example, Hinkel (2004) argues that the processes of L1 and L2 writing are fundamentally different from each other and, therefore, the process approach cannot be directly applied to teaching L2 writing. While the main criticism leveled at the product-oriented approach was its over-emphasis on grammatical accuracy, the process-oriented approach has been criticized for its overemphasis on content and organization at the expense of the linguistic precision and sophistication required and expected of L2 writers, especially when they are using the L2 as a medium for higher education. Thus, while L2 writing experts (e.g., Ferris, 1997) continue to acknowledge the value of the process approach, they also see a need for error correction.

2.6.1.3 Post-process Approach

The field of L2 writing has recently seen a number of new models of L2 writing – Matsuda's (1997) dynamic model that incorporates insights from contrastive rhetoric, Zimmermann's (2000) recursive model, and Wang and Wen's (2002) model that posits an important role for the learner's L1 in L2 writing. To date, however, there are no established L2 writing theories that have informed written CF research.

It is clear, however, that L2 writing instruction is now in a 'post-process phase'. According to Atkinson (2003), the term 'post-process' encompasses the complex nature of L2 writing as a fully-fledged sociocognitive, situational, dynamic and diverse activity. He comments:

> [this alternative approach] take[s] us beyond a focus on writing simply as a process, or more specifically as a highly cognitive, individualist, largely asocial process. Seen through a different lens, writing is a human activity which reaches into all other areas of human endeavor – expansive in a way that casts doubt on conventional boundaries between individual and society, language and action, the cognitive and the social.

From such a perspective, CF is viewed as a complex human activity which can only be understood by taking account of a variety of perspectives. Hyland and Hyland (2006, p. 10) characterize the complexity of feedback in this way. Emphasizing the social nature of CF:

> [It] is a form of social action designed to accomplish educational and social goals. Like all acts of communication, it occurs in particular cultural, institutional, and interpersonal contexts, between people enacting and negotiating particular social identities and relationships, and is mediated by various types of delivery.

It should be noted, however, that post-process approaches do not entirely undermine the principles of the process approach, but rather incorporate and expand on them. While post-process L2 writing researchers have not directly addressed the role of feedback, one clear implication is the need to take into account the cultural and institutional impact of individual learner differences – for example, their beliefs and preferences about feedback.

2.6.2 Written Corrective Feedback as a Vehicle for SLA Research

Historically, SLA theories have primarily addressed *oral* CF (but see Storch's (2005) work on collaborative writing). Most L2 writing researchers investigating the role of error correction have addressed written feedback in the context of overall writing development and consequently have measured its effect in terms of a number of different variables (e.g, they have examined whether providing corrections on learners' writing has a detrimental effect on fluency in subsequent writing tasks). CF has not been seen primarily as a way of helping learners to acquire the L2 but as a means of helping L2 writers to revise an initial draft. Thus, CF in second L2 writing and CF in SLA have been viewed very differently.

Nevertheless, as Reichelt (2001) points out, there is an alternative way of conceptualizing writing/writing instruction. That is to say, instead of treating writing as an end in itself, L2 writing can be viewed as a means to develop L2 acquisition. That is, writing instruction that incorporates written CF can be considered an instructional technique to draw L2 learners' attention to linguistic forms in their writing products and thereby assist second language acquisition. The way that Reichelt (2001) suggests writing instruction can be viewed is analogous to and compatible with the way SLA researchers view corrective feedback in oral interaction. Thus, this alternative approach to L2 writing may provide an ideal way of bridging the gap between the L2 writing and SLA research paradigms.

Interestingly, although L2 writing researchers often cite studies of oral CF to support their findings and to strengthen their arguments (e.g., Ferris, 1999, 2004; Truscott, 1996, 1999), it is rare to see SLA researchers discussing the findings from written CF studies. In contrast, L2 writing researchers have felt able to draw on the results of oral CF studies, but they have not benefited methodologically from CF research. For example, whereas written CF studies (e.g., Polio, Fleck, and Leder, 1998; Robb et al., 1986) have typically examined unfocused CF and examined its

effect on grammatical accuracy in general, SLA researchers (e.g., Han, 2002; Lyster, 2004) have investigated CF directed at a specific grammatical feature and measured acquisition in terms of that feature. SLA research suggests that intensive corrective feedback that repeatedly targets a single linguistic feature can have a beneficial effect on interlanguage development (e.g., Doughty and Varela, 1998; Han, 2002; Iwashita, 2003; Long et al., 1998; Mackey and Philp, 1998). L2 writing research can benefit from a similar approach. This may explain why written CF research is replete with findings that are incomplete or inconclusive (Ferris, 2003; Truscott, 2004). It might prove to be the case that when CF is focused, the modality of the CF makes little difference in the effect it has on improving learners' grammatical accuracy.

As mentioned in Chapter 1, Truscott (1996) argued for the complete abandonment of written error correction based on his own interpretations of the findings of written CF studies and SLA research at that time. He then concluded that teachers would serve L2 writers better by helping them with the content of their writing and by providing reading activities to enhance writing abilities. His (1996) critical review of empirical studies of written grammar correction and his controversial verdict that written CF is of no acquisitional value constituted a challenge to researchers. However, subsequently, the CF literature has offered an array of theoretical counterarguments and empirical studies demonstrating that CF can work for acquisition (e.g., Chandler, 2004; Ferris, 1999, 2004). For example, in her most recent empirical research, Ferris (2006) showed that written error correction provided by three different teachers was not only facilitative of learning, but also by and large accurate, thereby disputing Truscott's claims that teachers' CF is inaccurate and inconsistent.

It is important to note that L2 writing experts such as Ferris do acknowledge that more data and research are needed to tackle the question of whether written CF can make a difference in improving L2 writers' accuracy in new pieces of writing, not just in revisions of previous drafts. A number of additional studies exploring the efficacy of written CF have been conducted and published since then. These studies have borrowed the methodology from oral CF research as discussed above. As will be discussed in Chapter 5, the results of this research show promise for written CF as they provide clearer evidence that written CF can assist L2 learning. Thus, while the findings of past written CF studies are mixed and often contradictory – as Truscott (2007) pointed out in his latest critique of written CF – recent research provides a more optimistic picture. The controversy surrounding the role written CF plays in promoting L2 learning together with an account of the recent SLA oriented written CF research is considered further in Chapter 5.

2.7 Conclusion

As seen in this chapter, corrective feedback is addressed in SLA in (1) UG-based theories, (2) cognitive-interaction theories, (3) sociocultural theory, and (4) conversational analysis. It has received less attention in second language writing theories.

Overall, these theories afford widely differing views of the role that corrective feedback plays in L2 acquisition. While UG-based theories typically view CF as playing no role in learners' development of linguistic competence, cognitive theories and sociocultural theory both see CF as an important device for assisting acquisition. However, whereas cognitive theories are applicable to both oral and written CF (although formulated primarily with oral CF in mind), SCT is apparently only relevant to oral CF (which can target either oral or written errors). Cognitive theories and sociocultural theory also differ in how they think CF can best be implemented. These theories raise important issues not just for CF, but more generally for the nature of L2 acquisition and in particular, the importance of negative as opposed to positive evidence and the utility of metalinguistic understanding. Conversational analysis treats CF as a joint accomplishment between the teacher and student – a 'process' rather than a 'product'. It has shed light on how CF exchanges transpire in the language classroom. However, it is not clear to what extent conversational analysis addresses acquisition as it focuses exclusively on specific repair exchanges and has not yet examined whether these lead to changes in learners' interlanguage.

Written error correction has figured in second language writing, but as a way of improving the linguistic aspect of writing (e.g., accuracy). Overall, written CF has played a somewhat marginal role in L2 writing theories, with feedback on content and organization viewed as more important. However, partly as a result of Truscott's critique of written CF, L2 writing experts have begun to pay greater attention to the role that CF can play not just in helping learners write better, but also in facilitating L2 acquisition. This is clearly evident in the collection of articles in Hyland and Hyland (2006). SLA researchers have also begun to show an interest in written CF, recognizing that, like oral CF, it can potentially contribute to acquisition. They have brought to bear theoretical constructs drawn from SLA to investigate both whether it results in acquisition and what type of written CF is the most effective.

The next chapter will discuss how corrective feedback is viewed from a pedagogical perspective.

Chapter 3
Pedagogical Perspectives on Corrective Feedback

3.1 Introduction

Teachers are often uncertain about correcting their students' errors, but students themselves are very clear about what is needed. Survey after survey has shown that second language (L2) learners wish to be corrected by their teachers (Ferris, 1995; Hedgcock and Lefkowitz, 1994, 1996; Leki, 1991). This alone would seem a good reason for teachers to provide corrective feedback.

Most language teaching handbooks (e.g., Folse, 2009; Harmer, 1983, 2007, 2008; Hedge, 2000; Ur, 1996) include sections on corrective feedback, reflecting the importance attached to this aspect of teaching. Recognizing that differences exist in the provision of oral and corrective feedback, these handbooks typically address these two types of feedback in separate sections. I will do likewise in this chapter, although, as will become apparent in Chapter 6, I also see a number of important similarities in oral and written CF.

3.2 Pedagogical Issues in Oral Grammar Correction

In one of the earliest reviews on error correction, Hendrickson (1978) addressed the following questions: Should learner errors be corrected? If so, when should they be corrected? Which learner errors should be corrected? How should learner errors be corrected? Who should correct learner errors? These questions continue to be the key ones addressed in current language teaching handbooks.

3.2.1 Should Oral Errors Be Corrected?

There is now a growing consensus that teachers should correct learners' oral errors. As discussed in Chapter 2, cognitive accounts of CF claim that learners advance their interlanguage through the process of hypothesis testing and that CF provides learners with an opportunity for such hypothesis testing. In addition, numerous studies have shown that students wish to be corrected, which provides further

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support for correcting learner errors. Hendrickson (1978) argued emphatically for the utility of oral CF. Crookes and Chaudron (1991) likewise affirmed the need for CF, commenting 'even in the most learner-centered instruction, learners need feedback in order to differentiate between acceptable and unacceptable language use' (p. 61).

However, not all methodologists view CF so positively. Ur (1996) contends that while correction is not without merit, its potential contribution should not be overestimated because it often does not lead to the elimination of errors. She states that helping learners to avoid errors, rather than correcting them, would be a more worthwhile endeavor for teachers. Her position is reminiscent of the views common in the audiolingual era in the sixties and seventies when errors were discouraged at all cost. Other methodologists argue that learner errors should not be corrected during a communicative activity where the focus is on fluency (Harmer, 2007; Folse, 2009) because intervening and correcting them might have a negative impact on learners.

3.2.2 When Should Oral Errors Be Corrected?

A key issue in language pedagogy is whether teachers correct errors immediately after they occur or delay CF until later. Experts' opinions vary depending on the type of speaking activities learners engage in: fluency vs. accuracy work. In the former, the focus is on learners' ability to speak without undue pausing or repair. In the latter, the focus is on the extent to which learner output conforms to the target language norms. There is wide agreement that CF plays a role in accuracy work, but some methodologists feel it has no place in fluency work, arguing that students should not be interrupted while speaking (e.g., Bartram and Walt, 1991; Harmer, 2007). Those who hold this position recommend correcting errors through delayed CF until a communicative activity has been completed. Both Willis (1996) and Hedge (2000), for example, propose that teachers postpone their CF until later. They suggest recording a communicative activity and then replaying it to students who are asked to identify and correct their own errors, with the teacher only providing the correction if they fail to self-correct. Another technique they recommend is noting down errors as students perform a speaking task and then reviewing these after the completion of the task (see Rolin-Ianziti, 2010). It should be noted that although teachers also appear to favor delayed correction in fluency work, their beliefs about CF do not always reflect their actual practice of CF (Basturkmen, Loewen and Ellis, 2004). This is a point we will come back to in the final chapter of this book.

There is also the question of instructional context. Hendrickson (1978) referred to research that reported a general tendency for more corrective feedback episodes to occur when the instructional approach involved grammar teaching. He went on to recommend that errors should be corrected in explicit instructional contexts.

In contrast, as we have already seen, methodologists sometimes express the view that correction should be avoided in communicative contexts in the classroom. As Brown put it, 'we simply must not stifle our students' attempts at production by smothering them with corrective feedback (2007, p. 347).' However, as already noted, despite this belief, teachers frequently do correct in such contexts (see Basturkmen et al., 2004).

3.2.3 Which Oral Errors Should Be Corrected?

Perhaps the most important issue for teachers is which learner errors should be corrected. Hendrickson (1978) provided the following three criteria to guide decision making:

> Correcting three types of errors can be quite useful to second language learners: errors that impair communication significantly; errors that have highly stigmatizing effects on the listener or reader; and errors that occur frequently in students' speech and writing (p. 392).

Selective correction is widely promoted by language teaching methodologists (e.g., Byrne, 1988; Edge, 1989; Ferris, 1999; Harmer, 2007; Raimes, 1983). Various proposals – relevant to both oral and written CF – have been advanced regarding which errors to correct (Sheen and Ellis, 2011).

In accordance with Corder's (1967) distinction between 'errors' and 'mistakes', some methodologists have suggested that teachers should focus only on the former, as mistakes are merely performance phenomena. Another favored approach to selecting errors is to judge whether an error is 'global' in the sense that it creates a communication problem or whether it is 'local', violating the grammaticality of an utterance (e.g. a morphosyntactic error) but without hindering its comprehensibility (Burt, 1975). For example, the utterance, 'My dog's hair is killing', poses an intelligibility problem and thus needs CF, whereas 'I cutted my son's hair' does not. Hendrickson (1980) recommended that teachers treat the former, but not the latter, arguing that correction might interfere with the flow of communication and discourage the learner from engaging in meaningful conversation. Folse (2006) offered similar advice but also argued that teachers should correct errors that stigmatize learners as 'uneducated' (i.e., those features that are used by uneducated people in English, such as double negatives as in 'I don't have no money').

However, these distinctions are not clear-cut and thus difficult to implement in practice. In fact, teachers often have to decide whether they should provide CF without knowing the learner's intended meaning. In such cases, teachers do not have the luxury of deciding which linguistic features should be treated. Systematic engagement with selective error correction remains a challenging task for most teachers.

One solution to this difficulty might be to select a specific type of linguistic error to correct (i.e., to engage in focused correction). For example, teachers could elect to correct just errors in the use of past tense or in prepositions of time, ignoring other

errors. The focus would then shift to other types of linguistic errors in subsequent lessons. We will see later that this is the approach that has been recommended by some L2 writing methodologists and is also a viable approach for dealing with oral errors. Indeed, the research we will examine in Chapter 4 has invariably investigated the effects of focused correction.

3.2.4 How Should Oral Errors Be Corrected?

Hendrickson acknowledged that the question about *how* to correct errors was a difficult one given that teachers' error correction had been shown to be unsystematic: teachers obviously find it a daunting task to respond consistently to their students' errors. Still, he proposed a number of techniques, including (1) using error charts for building a hierarchy of error correction priorities based on the tactics that parents employed to help their children express their ideas, (2) summarizing and reviewing the most common mistakes at the end of an activity, and (3) making use of tape recordings of student conversations.

We have already noted in Chapter 2 the theoretical disagreement regarding how errors should be corrected, with cognitive theories advocating specific CF strategies and sociocultural theory proposing that CF be fine-tuned to provide the minimal amount of support required to enable learners to self-correct.

Teachers' actual practice of CF is often characterized as lacking in consistency and precision. According to Nystrom (1983), teachers often lack the skills needed to implement the different feedback options at their disposal in an appropriate manner. Allwright (1975) noted that teachers he observed corrected some students and ignored others and also varied in whether they corrected the same error at different times. He also suggested, however, that such inconsistency may not be problematic because teachers intuitively varied their CF in order to accommodate individual learner differences. Somewhat surprisingly, however, methodologists do not address this issue. There appears to be a general assumption that corrective feedback should be carried out in a consistent way.

Another important pedagogical issue relevant to this question concerns students' *affective response* to corrective feedback. A common view is that corrective feedback can make students anxious and, thereby, has a debilitating effect on their learning. Vigil and Oller (1976) distinguished 'cognitive' and 'affective' feedback. They contended that feedback that is cognitively beneficial in assisting learners to understand their errors but may not be affectively beneficial because it may result in raising sensitive students' affective filters (i.e., lead to lack of confidence, hesitation or silence). Hedge (2000) similarly argued that learners' affective factors should be considered when teachers provide error correction, and that an effective error treatment strategy is to encourage learners to self-correct because it is affectively beneficial. She further recommended that teachers use a variety of positive feedback strategies (e.g., signs of approval) as well as negative feedback strategies (i.e., correction of errors).

3.3 Pedagogical Issues in Written Grammar Correction

Learner errors are common in learners' writing as well as in their oral production. Ferris and Hedgcock (2005) summarized research that has investigated ESL writers' grammar errors. Common errors have been found in verb tenses, passive constructions, modal constructions, and subject-verb agreement. Such error types are rarely found in the writing of native speaking writing students. In particular, Ferris and Hedgcock pointed out that ESL writers have particular difficulty with various subclasses of nouns (e.g., count/non-count, abstract, collective) as well as with the use of articles and other determiners, and noted that these errors are likely to reflect L1 transfer and students' previous L2 exposure to and instruction in English (Leki, 1992; Reid, 1998).

The written feedback that L2 writing teachers provide has been characterized as arbitrary or inconsistent at best and insensitive, authoritarian, careless or pointless at worst (Ferris and Hedgcock, 2005). However, Ferris and Hedgcock noted that these descriptions apply mostly to the kind of teacher feedback given to justify a grade or to the very general comments intended to assist students when revising their drafts. Written CF can serve other functions. As previously stated, my concern in this book is not with how teachers should respond to content or organization but with how they should handle linguistic errors in their students' writing. This is what the term 'corrective feedback' refers to.

I will first examine what is known about learners' attitudes to corrective feedback and then consider a number of key issues in the provision of written CF.

3.3.1 Learner Perceptions About Written Feedback

There have been a number of studies that have investigated students' attitudes to teacher feedback using survey and self-report data (Cohen, 1987, 1991; Cohen and Cavalcanti, 1990; Ferris, 1995; Hedgcock and Lefkowitz, 1994, 1996; Leki, 1991; Radecki and Swales, 1988). Despite the earlier findings that teacher feedback is meaningless and irritating to students, and the subsequent claims that such feedback is often ignored (Connors and Lunsford, 1993; Knoblauch and Brannon, 1981; Sommers, 1982; Zamel, 1985), the studies consistently showed that learners value teacher feedback highly and believe that it helps improve their writing. More specifically, students were found to prefer comments that explain specific problems in their texts and make specific suggestions about how to revise them (e.g., Cohen, 1987; Ferris, 1995). Conversely, they find teachers' short, general comments less helpful, especially those that take the form of questions about content.

Similarly, Leki (1991) found that most students wanted their errors to be corrected by their teachers. In a survey study of 110 ESL and 137 FL (French, German and Spanish) college students, Hedgcock and Lefkowitz (1994) reported that both ESL and FL learners have a positive attitude toward written CF. In comparing ESL and FL students, however, they found that whereas FL students tend to prefer CF

directed at grammar, the lexicon and mechanics of their written texts to CF directed at content and style, ESL students expressed a preference for feedback on the content and organization of their writing. The fact that FL university students wish to attend to feedback on linguistic form more strongly than ESL students may reflect the different priorities and goals of these two types of learners. Whereas FL learners may be more concerned with developing their L2 knowledge, ESL learners may be more focused on developing writing as a skill. In other words, the learning context may determine how learners respond to the CF they receive.

Furthermore, individual learner factors such as language aptitude, learning style, personality, and motivation may individually impact the way learners respond to CF (Conrad and Goldstein, 1999). If this is so, then it is clearly important to consider individual learner factors in examining how students perceive and make use of teacher feedback. This will be dealt with in Chapter 7.

3.3.2 Key Issues in Written Corrective Feedback

The L2 writing literature has identified a number of pedagogical questions and suggestions regarding how to develop learners' writing skills in terms of accuracy. These questions are very similar to those I considered for oral CF. They are: (1) should written grammar errors be corrected?; (2) what errors should feedback focus on?; (3) what strategies are available for correcting learners' written errors?; (4) should error feedback be direct or indirect?; (5) how should learners be asked to respond to a teacher's corrections?; and (6) who should do the correcting – the teacher or the students? I will consider each of these questions in turn.

3.3.3 Should Written Errors Be Corrected?

We noted the differences that exist regarding the value of oral CF. Similar differences in opinion exist where written CF is concerned, as is evident in the debate between Truscott and Ferris (e.g., Ferris, 1999, 2004; Truscott, 1996, 1999, 2007). Truscott's views were considered in Chapter 1 so will not be revisited here. His basic position is that teachers would serve L2 writers better by focusing on the content of their writing and by providing reading activities that will enhance writing abilities rather than on correcting errors. Ferris (1999), however, argued that it was not possible to dismiss correction in general as it depended on the quality of the correction – in other words, if the correction was clear and consistent it would work for improving L2 writing. This debate has continued in the ensuing years. Truscott (1999), for example, replied to Ferris by claiming that she failed to cite any evidence in support of her contention. In response, Ferris (2006), re-examined data she had collected earlier in the attempt to provide evidence. However, pointing to flaws in her study, Truscott (2007) continued to argue that written error correction

has little (if not a slightly negative) effect on the accuracy of L2 learners' written texts.

Ferris (2002, 2004) argued that students need to have their written texts corrected and the teacher should correct students' written work. Her position has been well received by writers of handbooks for teachers. However, they also caution against the potentially damaging practice of over-correcting and emphasize that feedback on the content and organization of a written text is as important as feedback on linguistic accuracy. Ferris (2003) also noted that there is a tendency for teachers to focus too much on correcting linguistic errors at the expense of content and organization. A major issue, then, is how to balance content-feedback and grammar-feedback.

Hendrickson (1980) in a much earlier article also recognized the dangers of over-correction. He emphasized that L2 writing teachers should consider four important learner factors. First, they need to know their students' purpose and communicative goals for writing. Errors can be more easily tolerated when a student is writing an invitation letter or thank-you note than when the goal is to prepare students with the writing skills they need for graduate school. Second, he observed that advanced learners are much better able to locate their errors, find a solution and self-correct than beginning or intermediate writers who have a limited linguistic repertoire. Thus, learners' written proficiency must be taken into account. Third, teachers need to be aware of error types and their frequencies, and understand how students' errors affect the intelligibility of sentences. Lastly, and most crucially, he argued that teachers should be sensitive to students' own attitudes to error correction and differentiate learners with low confidence from ones with high confidence. He recommended that teachers give anxious learners supportive feedback on their errors by focusing on a limited number of serious errors and emphasizing feedback on the content of students' writing rather than on their grammatical errors.

However, it might be argued that learners' anxiety or low self-confidence is not really an important issue in written CF. While teachers' oral CF often takes place 'publicly' in front of the whole class with the danger that it will embarrass students and create anxiety through fear of making errors when speaking, written CF is directed at the individual and is a private practice – consequently, it is much less likely to lead to a negative effect in students. However, because students' written work is typically graded by the teacher, written CF might result in 'test anxiety'. Seen from this perspective, written CF might result in greater anxiety than oral CF, which typically does not entail any testing. Anxiety as a result of oral and written CF is addressed in greater detail in Chapter 7.

3.3.4 When Should Written Errors Be Corrected?

When to correct is less of an issue in written CF as correction is nearly always delayed to some extent unless, as in Aljaafreh and Lantolf's (1994) study, teachers ask students to read out their written text and try to correct errors. Arguably,

this constitutes a type of oral CF. However, the issue of timing arises in process writing instruction where students produce multiple drafts. Teachers need to decide whether to stage their feedback, focusing initially on content and organization and only in later drafts on linguistic errors. According to McGarrell and Verbeen (2007), corrective feedback is a form of assessment and thus should not be provided immediately after a text is written, as it may impede learners from revising the content and organization of the text.

3.3.5 Which Written Errors Should Be Corrected?

Similar proposals to those for oral CF have been proposed. Writing experts suggest that teachers categorize types of error into: (1) global errors (that interfere with comprehension) versus local errors (surface errors that do not hinder intelligibility of sentences); (2) stigmatizing versus non-stigmatizing errors (depending on whether the errors offend target language readers); (3) frequent versus infrequent errors (i.e., how often a particular error type occurs in relation to other error types); and (4) 'treatable' versus 'untreatable' errors. Ferris (1999) defines 'treatable' errors as those that 'occur in a patterned, rule-governed way', and 'untreatable' errors as those for which 'there is no handbook or set of rules students can consult to avoid or fix those types of errors' (p. 6). For example, according to Ferris (2002), errors in verb tense and form, noun endings and some article categories are treatable, whereas errors of lexical collocation and some complex sentence structures are untreatable. Thus, her proposal is that teachers should correct errors that are treatable, global, stigmatizing, and frequently occurring. However, as was the case for similar proposals for oral CF, it is not easy to see how such criteria can be applied by teachers. For example, there is no simple way of determining whether an error is treatable or not.

Opinions differ about whether written CF should be unfocused (i.e., address a wide range of errors) or focused (i.e., be limited to just one or two types of errors). If the teacher adopts a focused approach, many errors will go uncorrected. If they adopt an unfocused approach, learners may be overloaded with corrections and may fail to understand the corrections and/or be discouraged and so not attend to them. In general, methodologists assume that written CF should be unfocused but, as we will see in Chapter 4, recent research has demonstrated that written CF is effective when it is focused.

3.3.6 What Strategies Are Available for Correcting Learners' Written Errors?

Given that written grammar correction is desirable, the key question becomes which type of CF is more effective. In Chapter 1, I presented a typology of written CF types based on Ellis (2009). However, the principle types discussed in L2 writing circles are direct and indirect strategies.

Direct correction entails the provision of a target form, whereas indirect CF consists of indicating an error without providing the correct form, thus requiring learners to self-correct. There is a strong preference for indirect feedback among writing experts. They argue that indirect feedback is more effective in helping learners to develop their L2 proficiency because it requires learners to attend to their errors through engaging them in problem-solving activities (Ferris and Roberts, 2001; Leki, 1991; Rennie, 2000). Ferris (2002) also highlights the risk of direct feedback by arguing that teachers easily misunderstand students' original content and thus give inappropriate correction. However, she acknowledged the role of direct feedback with beginner writers and when dealing with 'untreatable' errors (i.e., syntax and lexical errors that learners are not capable of self-correcting). Perhaps the best course for teachers to follow is to make use of both direct and indirect approaches depending on the error type and learner factors (such as L1 background, L2 writing proficiency, and the nature of the writing task). Drawing on his own teaching experience and research, Hendrickson (1980) reached precisely this conclusion three decades ago, proposing that teachers should make use of both types.

A further issue regarding the provision of indirect CF concerns whether teachers should: (1) indicate the location of an error (either by circling or underlining it); (2) refrain from indicating the location by simply signaling in the margin that there is an error; or (3) use an error coding/labeling system to signal an error type or a specific error. Arguments in favor of all three options have been presented (e.g., Ferris, 2002; Ferris and Hedgcock, 2005; Hendrickson, 1980). The error-labeling option, for example, requires learners to apply the metalinguistic rules they have previously learned and thereby optimizes their self-editing ability. However, it can also be argued that the error-locating option is more effective, as this requires learners to work hard to first identify what is wrong with their choice of form and then figure out the correct form.

Direct and indirect correction have also been considered by Baker and Bricker (2010). However, they use these terms to refer to the nature of the speech act performed by metalinguistic feedback. A direct correction is one where the force of the corrective act is overt (e.g., 'Use past tense here') whereas in an indirect correction the force is masked (e.g., 'Could you change the verb tense here?' or 'You might want to change the verb here to the past tense'). Baker and Bricker reported that their participants, both native and nonnative speaking university undergraduates (mostly freshmen enrolled in a composition course), revised their original texts most accurately when the teacher correction was direct. On the other hand, the students, ESL learners in particular, had difficulty in identifying indirect or hedging teacher feedback as correction and also found that hedging comments – the most polite and indirect form of correction – elicited the least accurate revisions from the participants. These findings have an important pedagogical implication for L2 writing teachers; that is, just as in oral CF, teachers should ensure that learners are aware that they are being corrected. Baker and Bricker's study suggests that this is best achieved through direct CF. This is also the type of CF that learners are reported to prefer (e.g., Chandler, 2003; Ferris and Roberts, 2001).

An alternative strategy for dealing with learner errors is to encourage learners to address these errors themselves by helping them to develop self-editing strategies (Ferris, 1995; Reid, 1998). In this way, the burden of dealing with errors is less overwhelming for both teachers and students. Hendrickson (1980) recommended that teachers first identify and record the error types that each learner produces together with their frequency and then have students find and correct these errors, focusing on one error type at a time. However, this assumes that L2 learners know how to correct their errors, and, as I noted in the discussion of indirect CF, teachers cannot be sure that they always do.

3.3.7 Who Should Do the Correcting – The Teacher or the Students?

Hendrickson (1980) suggested that although teachers are assumed to be responsible for providing corrective feedback on learner errors, the role of the teacher in correcting errors should not be dominant and learners should be encouraged to correct their own errors.

This endorsement of self-correction finds theoretical support in the claim that pushing learners to stretch their interlanguage engages them in noticing the gap and in hypothesis testing. Learner self-correction, however, is problematic on practical grounds because first, learners prefer the teacher to the make correction for them and second, they may not be in a position to self-correct if they are lacking the necessary linguistic knowledge. Methodologists such as Hedge (2000) acknowledge that while there are many advantages of encouraging self-correction, this may not be always possible. This poses teachers with a conundrum – should they ask the learner to self-correct or provide the correction directly themselves? Indirect CF, where an error is indicated but nor corrected, constitutes a half-way house – the teacher takes on some responsibility for correcting but leaves it up to the individual student to make the actual correction – and this is yet another reason why this strategy is favored by L2 writing methodologists.

One way to solve this conundrum is to have students engage in peer-correction. This is the position adopted by some writing teacher educators, who argue that learners should be given opportunities to correct their fellow learners' errors. Also numerous L2 process writing methodologists as well as L1 writing scholars have advocated peer correction (Ferris, 2003). However, although peer correction has been extensively practiced, it has not been subjected to close empirical scrutiny. In fact, it poses a number of problems. First, teachers need to ensure that the situation does not lead to that of 'the blind leading the blind'. One way round this problem might be to provide students with careful training about how to conduct a peer review, as suggested by Ferris. Nevertheless, caution still needs to be taken in 'idealizing L2 peer group interactions as sites of constructive interaction' (Hyland and Hyland, 2006, p. 6).

3.3.8 Mismatches Between Teachers' Beliefs and Their Practice

Both Basturkmen et al. (2004) and Lee (2009) found discrepancies between teachers' beliefs and their actual practice of error correction. Basturkmen et al. investigated the beliefs about and practice of oral correction by experienced ESL teachers in a private language school in New Zealand. Lee investigated writing teachers in Hong Kong secondary schools. She identified ten mismatches between beliefs and practices. These are summarized in Table 3.1 below.

Lee (2009) also reported that the teachers she studied gave a number of reasons for these mismatches. They pointed out that despite their own beliefs, external factors (such as pedagogical values held by their institution, pressure to help their students pass exams, an administrative policy that prescribes how teachers should go about error correction) influenced the way they practiced CF in their own classrooms. A starting point to help teachers address the constraints they face might be to help them develop a clear understanding of their error correction practices and what options exist.

The discrepancies found between teacher beliefs about CF and their corresponding practice, therefore, also point to the need to consider another pedagogical

Table 3.1 Ten mismatches between teachers' beliefs and written feedback practice (adapted from Lee, 2009, pp. 15–18)

	Teachers' beliefs	Teachers' actual practices
1	Teachers believe there is more to good writing than language form	They pay most attention to language form
2	Teachers prefer selective over comprehensive marking	They mark errors comprehensively
3	Teachers believe that through teacher feedback students should learn to correct and locate their own errors	They tend to correct and locate errors for students
4	Teachers think students have limited ability to decipher error codes	Teachers often use error codes
5	Teachers are almost certain that marks/grades draw students' attention away from teacher feedback	They award scores/grades to student writing
6	Teachers know feedback should cover both the strengths and weaknesses in their students' writing	They respond mainly by pointing out the weaknesses in their students' writing
7	Teachers think students should learn to take greater responsibility for learning	Their written feedback practice allows students little room to take control
8	Teachers think process writing is beneficial	They ask students to do one-shot writing
9	Teachers know that students' written errors will recur despite their correction	They continue to focus on student written errors
10	Teachers think their feedback effort does not pay off	They continue to mark student writing in the same way as before

issue concerning error correction – what is the best way of helping teachers deepen their understanding of how error correction works? This issue will be dealt with in the concluding chapter where pedagogical implications are discussed (see Section 8.4).

3.4 Conclusion

This chapter has considered a number of pedagogical issues in oral and written CF, the characteristics of teacher oral and written feedback and learner response to feedback and student perceptions of feedback. What emerges is that CF – both oral and written – is a very complex issue, with no easy rule-of-thumb available to guide teachers. Recognizing this, Hyland and Hyland (2001) made this comment about written CF:

> Teacher response style may also be influenced by other factors, which can include the language ability of students, task types and the stage at which feedback is given. Feedback offered at a draft stage will often be different from feedback on a final product, intended to perform a different function. Many teachers view feedback on drafts as more developmental and so offer more critical comments on specific aspects of the text, while feedback on a final product is likely to give a holistic assessment of the writing, praising and criticising more general features. Thus, any study of teacher written feedback must take into account the interplay between teachers, students, texts, and writing purposes. . . (p. 188).

A similar statement could be made for oral CF. Whether, how or when CF is conducted must take account of the individual students involved and the nature of the instructional activity.

Therefore, differences exist in how best to conduct CF in the language classroom. As Hyland and Hyland (2006) stress, CF is a socially constructed discourse move, and can be culturally appropriate and cognitively beneficial only if it is provided in line with the learners' social and educational goals for learning the L2. Thus, it would be unrealistic to search for a set of guidelines that teachers should follow when conducting either oral of written CF that would be appropriate for all instructional contexts. Teachers should not expect to be given definitive answers to the problems they encounter on a daily basis. They should be wary of pedagogical prescriptions for CF. They need to critically examine the various proposals offered by methodologists and to explore their efficacy in their own instructional contexts.

Given the complexity of CF and the uncertainty as to what constitutes 'best practice', some teacher educators have been reluctant to prescribe the strategies that teachers should use. The approach adopted by Ur (1996) seems a wise one. Rather than advising teachers how to handle CF, she raises a number of questions for teachers to consider (see Fig. 3.1) and then offers answers based on her own practical teaching experience.

1. Do you use a red pen for your comments? Or another colour? Or a pen or pencil? Can you account for your choice?
2. Do you correct all the mistakes? If so, why? If not, on what did you base your decision which to correct and which not?
3. Those mistakes you correct: do you write in the correct form? Give a hint what it should be? Simply indicate it was wrong? Why?
4. Do you note only what was wrong, or do you give some kind of indication of what is right or particularly good?
5. Do you provide any kind of informative feedback other than error correction?

Fig. 3.1 Questions about written feedback (taken from Ur, 1996)

Much of the pedagogical advice handed out to teachers is based on methodologists' own experience of what they think 'works'. Such an experiential-based approach to corrective feedback is not without value. But it needs to be complemented by evidence derived from empirical studies of CF that show what effect it has on both uptake/revision and acquisition. This will be considered further in Section 8.4. There is now a substantial body of empirical research that has investigated both oral and written CF. The next three chapters will discuss the findings of this research.

Chapter 4
Oral Corrective Feedback Research

4.1 Introduction

Research into oral corrective feedback has enjoyed considerable attention and aroused much debate among scholars and language teaching methodologists alike for almost three decades. In the 1970s and 1980s, descriptive studies of CF flourished. While this line of research shed light on the characteristics and frequency of interactional moves involved when teachers/native speakers and students/non-native speakers participate in corrective feedback episodes, the acquisitional value of CF could not be demonstrated. As the debate regarding whether CF is of value to learners and learning intensifies, researchers have more recently designed studies of an experimental nature in an attempt to investigate what effect CF has on learning.

As we shall see in the sections to follow, both laboratory and classroom-based studies have contributed to our current understanding of the role CF plays in language learning. However, quasi-experimental studies which utilize intact language classrooms are of particular value as the findings of these studies are directly relevant to language pedagogy and the kinds of concerns raised by language teachers. Such studies connect theories of corrective feedback (discussed in Chapter 2) to classroom practices involving CF. In this chapter I will report my own quasi-experimental study of the effects of two types of oral corrective feedback on ESL classroom learners' acquisition of one specific grammatical structure.

4.2 Background

To provide a context for my study, I will begin by reviewing the research that informed it, focusing first on descriptive studies of CF and then on a number of key experimental studies. Following the report of the study I will examine some of the more recent experimental research that has investigated CF and also consider other more 'qualitative' approaches that are becoming increasingly influential in the study of CF. My overall aim is to provide the reader with an overview of the empirical research into oral CF.

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4.2.1 Descriptive Studies

Descriptive studies of corrective feedback involved the collection and analysis of observational data from real-life classrooms. The early studies were taxonomic in nature (i.e., they sought to classify the different strategies used) whereas the later ones employed the techniques of discourse analysis to look at complete CF episodes, including learners' response to correction.

4.2.1.1 Early Descriptive Studies

The early studies of corrective feedback in the 1970s addressed such issues as: when teachers provide correction (e.g., immediate/delayed); how they correct students (e.g., direct/indirect); who corrects the errors (e.g., teachers/students); and what types of learner errors were corrected (e.g., phonological, lexical, syntactic, content).

Chaudron's (1988) review of a number of observational classroom studies revealed a relatively high rate of corrective feedback by teachers. The findings from those studies showed that despite considerable variability in error correction patterns, teachers have a tendency to correct discourse and lexical errors more than phonological or grammatical errors.

Chaudron also reported that while many errors are ignored, the extent to which errors are corrected is contingent on the teacher's pedagogical focus. For example, Yoneyahm (1982) found that nonnative-speaking teachers in an EFL grammar-based classroom corrected frequently (from 85 to 90% of the total errors) because they gave high priority to error correction, whereas Salica (1981), Courchene (1980) and Lucas (1975) found that the correction rate was much lower (between 51 and 58%) in their adult ESL classes, where the instruction was communication-based. In short, the extent of teachers' corrective feedback has been found to depend on the language teaching context. The greater the focus on the communicative use of the target language, the less likely it is that language teachers will focus on formal linguistic accuracy by way of corrective feedback. However, one common finding in these early studies is that teachers' overall error correction rate is frequent, even in communicative classrooms (Fanselow, 1977; Hendrickson, 1978).

As noted in Chapter 3, these studies also showed that teachers' provision of error treatment is often arbitrary, idiosyncratic, ambiguous and unsystematic, which in turn invites the question as to whether error correction in the classroom is of any value (Long, 1977). For example, Allwright (1988) reported that the teacher might correct an error made by one learner, but ignore the same error made by another learner. He also reported that teachers' provision of metalinguistic feedback is often inaccurate and confusing to learners. He noted that implicit correction was typically accompanied by a sign of approval (e.g., 'yes', 'right') sending a mixed signal about the correctness of their utterances.

4.2.1.2 Descriptive Studies of CF in Communicative Classrooms

More recent descriptive research of corrective feedback has investigated communicative classrooms (e.g., Doughty, 1994; Ellis et al., 2001; Han, 2001; Lyster

and Ranta, 1997; Roberts, 1995; Seedhouse, 1997; Sheen, 2004). These studies have addressed a number of questions: (1) What are the different types of corrective feedback occurring in communicative classrooms?; (2) What relationship is there between different types of learner errors and teachers' error correction?; and (3) What is the relationship between corrective feedback and learner uptake (i.e., learners' immediate response following corrective feedback)? Some of these studies will be considered in detail.

In a seminal study, Lyster and Ranta (1997) examined the effect of error treatment types on learner uptake in French immersion classrooms. Drawing on observational data from four French immersion lessons (grades 4 and 5) taught by four teachers, they found that the most common type of feedback was recasts, accounting for 55% of all feedback. However, recasts produced the least amount of the uptake (31%) and successful repair (18%). In contrast, elicitation resulted in a much higher rate of repair (45%) – (see Section 1.4 for a definition of these terms).

However, it should be noted that in an immersion classroom setting involving children such as those in the Lyster and Ranta study, the opportunities for learner uptake following recasts are very limited, as teachers often elect to continue the topic immediately. Oliver (1995), who examined this issue of 'no opportunity for uptake', suggested that the rate of uptake following recasts can differ considerably depending on whether the teacher provides learners with the opportunity for uptake.

Lyster (1998a), using the same database as in Lyster and Ranta (1997), found that recasts and non-corrective repetition occurred equally frequently, making the function of the corrective recasts ambiguous. That is, both recasts and noncorrective repetition served as confirmation and confirmation checks. Thus, 'as the content of the student's message is confirmed ... whether or not he perceives the teacher's recasts as negative evidence, at the same time, remains uncertain' (Lyster, 2002, p. 388).

Two descriptive studies of ESL instructional contexts – Ellis et al. (2001) and Panova and Lyster (2002) – reported conflicting results on the efficacy of recasts in promoting uptake. Ellis et al. (2001) investigated focus-on-form practices (including teachers' provision of error correction), learner uptake, and subsequent repair, which they called 'successful uptake', in intensive adult ESL classrooms in New Zealand. They reported that recasts were the most dominant type of feedback (75%) leading to a high level of uptake (75%). They suggested that their results differed from those of Lyster and Ranta because of the learners' concern for form in their communication-based lessons and because the learners were also partially primed by the form-focused grammar instruction they received prior to the communicative lessons. In other words, the learners may have been on the look-out for the teachers' corrections.

The high rate of uptake and repair found in Ellis et al. (2001) contrasts sharply with the findings of Panova and Lyster (2002). Despite the fact that Panova and Lyster's data come from an entirely different instructional setting, namely, an adult ESL classroom in Canada, they produced very similar results to Lyster and Ranta's (1997), i.e., a low rate of uptake and repair following recasts and a substantially higher rate following prompts (e.g., elicitations and clarification requests). Panova and Lyster (2002) cited eight classroom-based observational studies on feedback

and learner uptake (Allwright, 1975; Chaudron, 1977; Doughty, 1994; Fanselow, 1977; Lyster, 1998a; Lyster and Ranta, 1997; Roberts, 1995; Slimani, 1992) and concluded, 'in comparison with other feedback types, recasts do not promote immediate learner repair, which, in the case of recasts, involves repetition' (p. 578).

Given these conflicting findings, Sheen (2004) set out to examine the extent to which corrective feedback and uptake behaviors differed according to instructional setting by comparing the results provided by Ellis et al. (2001), Lyster and Ranta (1997) and Panova and Lyster (2002), and by analyzing her own adult EFL classroom data. Using an error coding system based on error treatment sequences, she compared the frequency of correction types and learner uptake following correction in four different classroom settings – all involving communicative language teaching: Canada Immersion (from Lyster and Ranta, 1997), Canada ESL (from Panova and Lyster, 2002), New Zealand ESL (from Ellis et al., 2001), Korea EFL (new data from Sheen). She found that the uptake and repair following recasts produced by New Zealand ESL and Korea EFL were significantly higher than those by Canada Immersion and ESL. This led her to suggest that recasts may generate more or less uptake depending on whether teachers and students are oriented towards language as form according to the instructional context.

This interpretation, based on the nature of the form-focused classroom, is also reflected in Doughty's (1994) descriptive classroom study. Doughty found an advantage for recasts over other feedback types in terms of uptake. She analyzed 6 h of interaction among adult learners of French in Australia and found that recasts produced more frequent repair (21%) than other feedback types, such as clarification requests (5%) and exact repetition (2%). The foreign language classroom used in her study involved a curriculum that included and even emphasized linguistic accuracy; thus, even during communicative tasks, the students were probably on the look-out for grammatical forms and feedback.

There is another possible explanation for the different findings of these studies regarding uptake following recasts. One reason why Panova and Lyster (2002) reported such low levels of uptake may have had to do with the extent to which their learners (who came from Haiti with limited school education) possessed alphabetical literacy. In a recent study, Bigelow et al. (2006) reported that learners with low levels of literacy were less able to respond to recasts on grammatically flawed questions than were learners from the same background but with higher levels of literacy. The fact that Doughty's (1994) and Ellis et al.'s (2001) learners were likely to have possessed high levels of alphabetical literacy (as they were all adults with many years of classroom instruction) affords another explanation for why they also produced higher levels of uptake than Panova and Lyster's learners.

Descriptive studies of recasts have also utilized data collected from a laboratory setting involving native speaker (NS)-nonnative speaker (NNS) dyads. Richardson (1993), for example, examined three adult ESL learners by recording a 15-min free conversation and found that recasts produced higher rates of repair than other types of feedback. The use of recasts with children has also been investigated by Oliver (1995). She studied eight NSs and eight beginning ESL child learners performing communicative tasks. She reported that the children succeffully incorporated recasts

in their subsequent output 35% of the time. A similar pattern was found by Braidi (2002), whose participants included 10 NSs and 10 adult intermediate ESL learners. The learners were observed to incorporate 34% of recasts during 1 h of task-based interactions.

It should be noted that the role of learner uptake in interlanguage development is controversial because uptake is an optional move (Ellis et al., 2001). Thus, although successful uptake can be assumed to constitute evidence of noticing, the absence of successful uptake cannot be assumed to imply an absence of noticing. Research has shown that noticing and/or subsequent learning can occur without the occurrence of learner uptake (Mackey and Philp, 1998; Ohta, 2000b). Even those researchers who used uptake to measure the effectiveness of recasts acknowledge this (e.g., Ellis et al., 2001; Lyster and Ranta, 1997; Sheen, 2004).

These descriptive studies have provided valuable information about how CF was carried out in classroom settings and also helped to establish a metalanguage for talking about different types of CF and learners' response to CF. However such studies could not address the key issue – namely, what effect CF has on the development of learners' interlanguage. The investigation of this issue requires an experimental design.

4.2.2 Experimental Studies

The experimental studies I will consider in this section were those that informed my own study of the effects on L2 acquisition. This study examined two types of CF – recasts and metalinguistic feedback. The review that follows focuses on studies that have investigated these two types.

4.2.2.1 Experimental Studies of Recasts

As we have already seen, recasts have been the object of intensive inquiry. Researchers have focused on recasts for three main reasons: (1) they are very frequent in classrooms, (2) they are considered to be implicit, and thus may not always successfully induce learner noticing, and (3) they provide both positive feedback (i.e., input) and potentially (if noticed) negative feedback. Many of the experimental studies have been conducted in a laboratory setting (e.g., Carroll and Swain, 1993; Han, 2002). However, it can be argued that in such settings where learners meet one-on-one with a native speaker, any NS utterance may be perceived as some sort of feedback. In this respect, a laboratory setting is potentially very different from a classroom setting. However, there have also been a few quasi-experimental studies involving intact classrooms (e.g., Doughty and Varela, 1998; Ellis et al., 2006; Lyster, 2004; Nabei and Swain, 2002). I will focus on these here.

Nabei and Swain's (2002) case study examined the effects of recasts on the learning of various linguistic items by one upper-intermediate EFL learner in a content-based classroom. The learner's development was measured by a tailor-made posttest on items that the learner had received recasts on during six 70-min class

sessions. Nabei and Swain found that approximately 50% of the time the learner was able to judge sentences containing the items that the teacher had recast during a lesson accurately. In other words, they found that recasts resulted in short-term learning. This finding, however, is limited in that they did not examine the effect of recasts over time (e.g., in a delayed posttest) nor in comparison to other feedback types or to no feedback. Also, the grammaticality judgment test used in their study is very different from the production-based instruments used in other CF studies (e.g., Han, 2002; Lyster, 2004).

Doughty and Varela's (1998) study, which did include a delayed posttest, provides clear support for the developmental benefits of recasts in an ESL immersion classroom involving 34 middle school students. The recasts were provided in the context of oral and written reports of science experiments performed over a 6-week period. The target structures of the study were simple past and past conditional verbs. Recasts used in their study were operationalized as a repetition of the error with rising intonation to draw learners' attention to the non-target form, followed by a recast with a falling intonation if the students did not self-correct after the repetition. Doughty and Varela found that the recast group produced gains on both the written and oral measures, whereas the control group did not. They concluded that the recasts facilitated L2 development. However, this finding needs to be interpreted with caution. First, their operational definition of recasts meant that the recasts were very explicit, unlike the kinds of recasts found in other studies (e.g., Lyster and Ranta, 1997). Second, the learners in the group received both written and oral corrections and also had an opportunity to watch their presentation and to repeat the correct form.

Two recent classroom studies (Ellis et al., 2006; Lyster, 2004) have failed to provide much support for recasts. Lyster (2004) examined the relative effects of four types of form-focused instruction (FFI) – FFI + recasts vs. FFI + prompts vs. FFI only vs. no feedback – on the acquisition of French grammatical gender in immersion classrooms in Canada. In a prestest-treatment-posttest-delayed posttest design, he used two written tasks and two oral tasks to measure students' learning gains resulting from the four treatments. He found that the FFI group with prompts was superior to the control in all measures in both posttests, whereas the FFI with recasts group outperformed the control group only on the posttest written measures and the delayed-posttest oral measures. He concluded that prompts are superior to recasts and suggested they work better for acquisition because they push learners to self-repair.

While these studies provide insights into the acquisitional value of recasts in real classrooms, they do not provide a clear picture of the relative effects of implicit and explicit corrective feedback on acquisition. The prompts in Lyster (2004) conflated implicit and explicit types of feedback, as he did not distinguish implicit prompts such as clarification requests and explicit prompts such as metalinguistic feedback.

However, a study by Ellis et al. (2006) attempted to do this. Ellis et al. investigated the relative effects of implicit and explicit corrective feedback on the acquisition of past tense – 'ed' by low intermediate ESL learners in New Zealand. Implicit feedback was provided in the form of recasts and explicit feedback in the

form of metalinguistic feedback. To measure learners' performance, two types of testing instruments were used: (1) an oral imitation test was designed to measure learners' implicit knowledge; and (2) an untimed grammaticality judgment test and a metalinguistic knowledge test were designed to measure learners' explicit knowledge. The treatment involved two communicative tasks lasting 1 h each. The results indicated that learners in the metalinguistic group outperformed those in the recasts group on the delayed imitation and grammaticality judgment posttests. The findings suggest that metalinguistic feedback was not only superior to recasts, but also catered to developing both implicit and explicit knowledge.

The key issue with regard to the efficacy of recasts is the extent to which learners notice the corrected features in the recasts. Noticing is a psycholinguistic construct, which cannot be easily measured. One way researchers have tried to measure it is through stimulated recall. Mackey, Gass and McDonough (2000) found recasts directed at morphosyntactic errors were noticed much less than recasts directed at pronunciation or vocabulary. Egi (2004), using stimulated recall data, found that recasts could be more or less explicit. She showed that whether learners recognized them as corrective depended on their linguistic characteristics (e.g., whether they were short/long or full/partial). It can also be argued that recasts focusing intensively on a specific grammatical target will be more noticeable than recasts targeting a variety of linguistic errors.

To conclude, it is likely that when recasts are salient to the learner and the corrective force is explicit they are likely to be more effective in promoting acquisition of the target features. Several of the studies referred to above (e.g., Doughty and Varela, 1998) lend support to this claim. Loewen and Philp (2006) investigated the effect of different characteristics of recasts (e.g., linguistic focus, length of recasts, number of changes, segmentation) on individual learners' acquisition as measured by tailor-made tests and found that those recasts with explicit linguistic characteristics were more likely to result in learning.

4.2.2.2 Experimental Studies of Metalinguistic Feedback

Whereas recasts are generally considered an implicit corrective feedback strategy, metalinguistic feedback constitutes an explicit corrective feedback strategy. Explicit feedback, in the form of metalinguistic correction in particular, is common in form-focused instruction (Spada and Lightbown, 1993).

Schmidt (2001) distinguishes noticing from understanding, which he argues entails a deeper level of learning. Noticing involves simply attending to exemplars of specific forms in the input (e.g., 'a' and 'the' in noun phrases), whereas understanding entails knowing the abstract rule or principle that governs that aspect of language (e.g., English uses 'a' before the first mention of a noun and 'the' before the second mention of that same noun). If metalinguistic feedback assists learners in developing awareness of these abstract rules, as seems likely, then it may prove more effective in promoting learning than implicit types of CF (such as recasts) that simply promote noticing.

Several studies have found that explicit types of CF are more effective than implicit types of CF. For example, Carroll, Swain, and Roberge (1992), in a laboratory study, reported that an explicit CF group outperformed the control group who did not receive CF. In a follow-up study, Carroll and Swain (1993) found that this kind of explicit CF (where learners were told they had made an error and were given an explicit metalinguistic explanation) was more effective than any of the other CF types, which included 'explicit utterance rejection' (where learners were just told that they had made an error), recasts, and indirect metalinguistic feedback.

These studies all took place in a laboratory, but similar results have been obtained in a number of classroom studies. Ellis et al. (2006), in the study referred to above, found that metalinguistic feedback (explicit CF) was superior to recasts (implicit CF) in promoting the acqusition of English regular past tense. The results indicated that metalinguistic feedback assisted the development of implicit as well as explicit knowledge although its effect was only evident in the delayed posttest.

Another study suggesting that metalinguistic CF is more effective than recasts is Lyster (2004). As noted above, Lyster's prompts included both implicit and explicit corrective strategies. However, many of the prompts were explicit in nature and also included metalinguistic explanations of learner errors. The reason why they proved more effective than recasts (a more implicit form of CF) might be because they provided explicit information about the target structure. Another possibility is that metalinguistic feedback consisting of provision of the correct form along with grammatical information (i.e., direct metalinguistic feedback) will prove more effective than metalinguistic feedback consisting only of grammatical information (i.e., indirect metalinguistic feedback). Carroll and Swain's (1993) study of dative alternation lends support to this claim. This study found that direct metalinguistic feedback was superior to indirect metalinguistic feedback (and recasts) in the short-term.

4.3 Sheen's Experimental Study

The study reported below sought to compare the effects of two types of oral CF (recasts vs. metalinguistic correction) on the acquisition of articles by adult intermediate ESL learners. It sought an answer to the following research question:

> Do recasts and metalinguistic correction have a differential effect on the acquisition of English articles?

4.3.1 Method

4.3.1.1 Design

The study employed a quasi-experimental research design with a pretest-treatment-posttest-delayed posttest structure, using intact ESL classrooms. During the 2 weeks prior to the start of the corrective feedback treatments, the participating students

signed consent forms. In the following week, they completed the pretests. The immediate post-tests were completed on the same day of the second of the two CF sessions and the delayed posttests 3–4 weeks later. During each testing session, three subtests were administered in the following order: a speeded dictation test, a writing test and an error correction test.

4.3.1.2 Setting

The study was conducted in a community college on the East coast of the United States. The college offers intensive and extensive English language courses in its American Language Program (ALP) for those who wish to speak and write English accurately and fluently. Grammar, Writing, Reading, and Speech (i.e., listening comprehension using audio tapes and speaking practice) are offered each semester and each class is taught by a native/near-native English-speaking teacher, lasting from 1 h and 20 min to 3 h per session.

The program has four levels – Foundation, Levels I, II and III (most advanced level) – with an average class size of 15–20 students. More than 1,100 students enroll each semester (15 weeks total), with a wide range of backgrounds in terms of age (18–62), ethnicity, previous education (high school graduate to doctorate) and occupation. Three major student populations in the program are Spanish, Polish, and Korean.

The ALP is oriented toward accurate language use with an emphasis on the development of the English required for college. The major goal of the program is to prepare the learners to speak and write well in a formal setting (e.g., higher education institutions, the professional job market). However, the program does not provide English for Academic Purposes (EAP) courses. Prior to the current study, the researcher visited the site several times to observe different types and levels of classes. Level II – intermediate – was chosen for this study. This is because (1) the Level II students were found to already know the linguistic forms 'a' and 'the' but used them incorrectly and (2) the testing and treatment instruments were shown to be neither too easy nor too difficult for learners at this level.

4.3.1.3 Participants

The participants were five native-speaking American teachers and their 99 intermediate level students (aged from 20 to 51), representing various language and ethnic backgrounds (e.g., Chinese, Japanese, Korean, Spanish, Polish, Russian, Turkish). Most students held a college associate's or BA degree or were in the process of applying to college. Their length of residence in the US ranged from 1 to 5 years. The class sizes ranged from 15 to 22. In the end, 80 students completed the pretests, posttests, delayed posttests and the exit questionnaire; students with an incomplete dataset were excluded from the sample. Out of a total of 6 intact classrooms, three groups were formed: one 'recasts' group ($N = 26$), one 'metalinguistic correction' group ($N = 26$) and one control group ($N = 28$).

During the semester (a total of 15 weeks) when the current study took place, most students in the sample were taking a combination of two to three courses from Grammar, Writing, Reading and Speech (i.e., listening comprehension involving audio tapes and speaking), lasting for 1 h and 20 min to 3 h per session.

4.3.1.4 Operationalizations

1. Recasts

Recasts were operationalized as a teacher's reformulation of a student's erroneous utterance, without changing the meaning of the student's original utterance, in the context of a communicative activity (Sheen, 2006). Recasts can be full (see Example 4.1) or partial – when the teacher only reformulates the incorrect segment (e.g., phrase, word) of the learner's utterance – as in Example 4.2 below.

Example 4.1
S: There was fox.
T: There was a fox.

Example 4.2
S: He took snake back.
T: The snake.

2. Metalinguistic correction

Metalinguistic correction was operationalized as a teacher's provision of the correct form following an error, together with metalinguistic information (see Example 3). It should be noted that this operationalization of metalinguistic correction differs from 'metalinguistic CF' as defined by other researchers (Ellis et al., 2006; Lyster, 2004; Lyster and Ranta, 1997), who excluded provision of the correct form. In this respect, the metalinguistic correction used in the current study can be seen as a multiple feedback move that combines recasts and metalinguistic feedback (e.g., Sheen, 2006).

Example 4.3
S: There was a fox. Fox was hungry.
T: The fox. You should use the definite article 'the' because you've already mentioned 'fox'.

4.3.1.5 Target Structure

Articles were chosen as the target structure for the current study with a view to isolate the effect of error correction from the potential effect of grammar instruction in general. This decision was made after a series of discussions with the participating faculty members at the college, which revealed that (1) participating students are not explicitly taught articles during the semester and (2) articles, while constituting a structure where students commonly make errors, are infrequently corrected due to their non-salience and the complicated rule explanations involved in their use.

Table 4.1 Taxonomy of English article usage

Type 1	Generics and unspecifiable ('zero' 'a' 'the')	**A** cat likes mice
Type 2	Referential definites ('the')	Pass me **the** pen
Type 3	Referential indefinites, first mention ('a')	I saw **a** strange man standing at the gate
Type 4	Nonreferentials ('a')	I'm going to buy **a** new bicycle
Type 5	Idioms and other conventional uses ('a' 'the')	All of **a** sudden, he woke up from his coma In **the** 1960s

Butler (2002) classified the five types of English articles in different noun phrase environments as shown in Table 4.1.

While 'the' and 'a' belong to the top five most frequently occurring words in English according to the COBUILD corpus (Sinclair, 1991) it has been well documented in the SLA literature that learners have difficulty in learning articles because of their complex nature (i.e., both linguistic and pragmatic factors determine article use).

For this reason, care was taken in the current study to focus the correction on errors involving just two major functions of indefinite and definite articles – i.e., Type 2 in Table 4.1 ('the' as anaphoric reference) and Type 3 ('a' as first mention), as in the following example:

When I found **a** red box in front of my house, **the** box blew up with a terrific explosion.

English articles are considered to be a non-salient feature because misuse of articles rarely leads to communication breakdown (Master, 2002). It was also thought likely that the intermediate learners investigated in the current study would know the linguistic forms 'a' and 'the', yet would typically not know or have full control over these two functions.

4.3.1.6 Corrective Feedback Instruments and Procedures

1. Narrative task instruments

There were two treatment sessions. Each session involved a narrative stimulus for the purpose of eliciting article errors from the learners who were asked to retell each narrative to the class. The first narrative task involved an adapted Aesop's fable, 'The fox and the crow' (see Appendix 1 in Chapter 4). There were seven indefinite articles and seven definite articles in the story. The ALP faculty considered the task suitable for their intermediate level students, yet expected that the students would often make article errors. The second story was constructed by the researcher with a view to make an interesting yet simple story with easy vocabulary that afforded plentiful instances of the two article functions. There were seven indefinite articles and ten definite articles in the story (see Appendix 1 in Chapter 4).

2. Corrective feedback treatment procedures

Meetings with participating teachers were arranged several weeks before the CF treatments began. For the treatment groups, teachers were given research materials and were fully informed about the research procedures well in advance. The researcher and each teacher met 15 min prior to class and rehearsed how the teacher would provide feedback when the students retold the stories. For the CF treatment groups, a 15-min rehearsal in the presence of the researcher took place, using the treatment narrative. After a series of email exchanges and rehearsals, the teachers said that they were familiar and very comfortable with the research procedures. However, during the pilot study, it was found that the teachers had difficulty identifying article errors when their learners retold the same story over and over because it was difficult to determine whether the students were using articles correctly or not. Also, by constantly hearing the same noun phrases in the same story from other groups, the learners became familiar with the routinized expressions, which resulted in their making few errors. In an effort to address this problem, it was decided that students would be asked to modify the content of the stories as they retold them.

The CF treatment took place in the five intact classes over a period of 2 weeks. The entire treatment involved two narrative tasks and the CF treatment. For each of the two treatment sessions, a 30–40 min narrative task was used to elicit article errors from the learners. Each session was audio-recorded by the researcher with a clip-on microphone attached to the teacher. The control group did not complete the tasks and therefore did not receive any corrective feedback**.** The procedures for the experimental groups were as follows.

1. The teacher handed out a fable/parable to the students and told them that they were to read a short story and then tell the story themselves.
2. The teacher asked them to read the story silently.
3. The teacher discussed the moral of the story with the class.
4. The teacher then collected the stories and read the story aloud just once to refresh their memory as the students noted down the key words.
5. The teacher gave the students 5 min to practice telling the story in groups of three or four. Only one group kept the original story to tell the class while other groups were asked to revise the story by changing the names of people, animals and objects (e.g., from ‘boy’ to ‘girl’ or from ‘snake’ to a ‘spider’ in the narrative).
6. Each group retold the story (or a modified version of the story) to the entire class, with each individual in the group providing only one or two sentences before passing the speaker role to the next group-member.
7. Whenever a student made an error in article usage, the teacher corrected the error using either a recast (in the recast groups) or a metalinguistic explanation (in the metalinguistic groups).

4.3.1.7 Testing Instruments and Procedures

For each testing session (pretest, posttest and delayed posttest), three tests were administered in the following order: a speeded dictation test, a writing test and an error correction test.

1. Speeded dictation test

This test consisted of 14 items, each of which contained one or two sentences involving the use of indefinite and definite articles as shown in Example 4.4 below.

Example 4.4
I saw a movie last night. The movie made me sad.

Example 4.4 contains the two stimuli ('a movie' and 'the movie') to measure knowledge of the indefinite article 'a' and the definite article 'the'. This speeded dictation test was time pressured to limit learners' ability to draw on their explicit grammatical knowledge (R. Ellis, 2005). An oral elicited imitation test would have been ideal for this purpose (Bley-Vroman and Chaudron, 1994) but, due to logistic constraints, the individual testing this would have required was not possible. Each item in the test had one or two stimuli involving article-obligatory contexts. The total number of article stimuli in the test involved 9 indefinite and 12 definite articles (see Appendix 2 in Chapter 4).

In scoring this test, target-like use (TLU) scores were calculated (Pica, 1991). The TLU analysis measures learners' knowledge of articles by taking overuse of the target form into consideration. Articles were first scored for correct use in obligatory contexts. This score then became the numerator of a ratio whose denominator was the sum of the number of obligatory contexts for articles and the number of non-obligatory contexts in which articles were supplied inappropriately.

In administering this test, each student was provided with a small notebook. The researcher first explained the procedures to the students. Then the teacher read two sample sentences so that the students could familiarize themselves with the procedure. Each item was read at a normal speed and students were directed to write down one item per page as fast as they could and exactly as they heard it. Once the students turned to the next page for the next item, they were not allowed to return to the previous page. This prevented the students from consciously reworking what they had written. The total time taken for the test was approximately 8 min (15 s for one-sentence-items and 25 s for two-sentence-items).

2. Writing test

This test was adapted from one of Muranoi's (2000) test instruments for English articles. It consisted of four sequential pictures, and the students were asked to write one coherent story based on them. Word prompts next to each picture were included

to elicit noun phrases involving article usage. For example, next to the first picture the word prompts were 'old man', 'paint' and 'picture', thereby encouraging the students to construct a sentence such as 'An old man wanted to paint a picture'. This test was preceded by the dictation test and the students were given 10–12 min.

In coding the writing data, the same scoring guidelines as for the dictation test were adopted (i.e., target-like use (TLU) scores, see Pica, 1991). Using the TLU analysis, students' scores were calculated as percentages. The writing test guidelines for scoring are as follows. When it was not clear whether a Noun Phrase (NP) constituted an obligatory context for 'a' or 'the' based on the student's writing, the NP was not coded. Only suppliance/non-suppliance in unambiguous contexts was coded (i.e., the contexts where the researchers could definitely determine that 'a' or 'the' was needed). This meant that some possible errors were ignored. Examples of this procedure were as follows:

(1) in the case of the word prompt 'park', both 'in the park' or 'in a park' were possible, so NPs containing this word were excluded from coding. However, when neither article ('a' or 'the') was present in the NP, it was coded as non-suppliance;
(2) in the case of the word prompts 'boy' and 'girl', when the student wrote, 'A boy and girl', only the first NP (i.e., 'a boy') was coded since it is not clear whether the student used the elision rule correctly. In a similar vein, when the student used 'the boy and girl' as second mention, only the first NP was coded. However, if the first NP was erroneous, either as first mention or second mention (e.g., 'boy and a girl', 'boy and girl'), each NP was included in the coding;
(3) any NP where a determiner and an article were co-present as in the following example, 'A boy and girl are look at the his picture' were excluded;
(4) articles in idiomatic phrases – e.g., all of a sudden, a few minutes, at the moment – were also excluded.

3. Error correction test

This test consisted of 17 items. Each item contained two related statements, one of which was underlined and contained an error, which the learners were asked to correct in writing (see Appendix 3 in Chapter 4). The items were adapted from test instruments used in Liu and Gleason (2002) and Muranoi (2000). Four distracter items were included, involving the use of past tense, modal choice, and subject-verb agreement. Example 4.5 below is taken from the test, followed by the correct answer.

Example 4.5
I saw an interesting movie last night. I forgot the name of movie.
Answer: I forgot the name of the movie.

The error correction test was scored on a discrete item basis. One point was given for each correct suppliance of an article in the 14 obligatory contexts in the underlined

sentences in the test. Excluding the distracters, 14 points was the perfect score for the test, and students' final scores were calculated as percentages. The students were given 15 min for this test.

4.3.1.8 Test Reliability

The percentage agreement scores for the dictation and writing tests and reliability coefficients for the error correction test are shown in Table 4.2. A second researcher coded a sample of 25% of the total dictation and writing data. The 25% sample came equally from the pretest, posttest and delayed posttest. The percentage agreement scores ranged from 83.7 to 92.1% (see Table 4.2 below). The reliability of the error correction test (during the pretest session) was estimated using Cronbach's alpha; the reliability coefficient for the 14 items in the pretest produced an alpha of 0.84 ($M = 5.17$, $SD = 3.59$, $N = 80$), and alphas of 0.83 and 0.91 for the posttest 1 and posttest 2, respectively. An alpha above 0.70 is generally considered acceptable as reflected in a number of published studies in Applied Linguistics and SLA journals whereas an alpha below 0.60 should be a warning sign (Dörnyei, 2003).

4.3.1.9 Exit Questionnaire

A short questionnaire was administered immediately following the error correction test in the delayed posttest session. The exit questionnaire was designed to examine whether the students had become aware of the focus of the error correction treatments and tests. Two questions used in the exit questionnaire are shown in Fig. 4.1.

4.3.1.10 Data Analysis

All scores were entered into SPSS 11.5 (Statistical Package for the Social Sciences). SPSS datasets were used for descriptive and inferential statistics. First descriptive statistics for the language analysis test, questionnaire, speeded dictation test, writing test and error correction test were computed. In order to answer the research question which investigates whether there is a significant effect CF on learning outcome, I computed one-way ANOVAs for the three tests of article acquisition (the criterion measures), followed by two-way repeated measures ANOVAs, and Tukey post-hoc comparison tests.

Table 4.2 Reliability of tests

	Percentage agreement		Reliability coefficient (r)
Test	Dictation	Writing	Error correction
Pretest	87.1%	83.7%	0.84
Posttest 1	89.2%	87.6%	0.83
Posttest 2	92.1%	89.8%	0.91

1. Now that you have completed the story tasks and the tests, what do you think they were all about?
   a. They were practicing and testing my writing.
   b. They were practicing and testing my grammar.
   c. They were practicing and testing my general English skills.
   d. They were practicing and testing my vocabulary.

2. Please write a sentence saying what you think you learned from this.

Fig. 4.1 Exit questionnaire questions

In order to examine the relationship among three criterion measures, a correlational analysis and a Principal Component Analysis were conducted. A Principle Component Analysis explores the patterns of variability within a set of scores with a view to identify underlying 'factors' that can account for the variability. A Principle Component Analysis indicates to what extent the scores for the different variables entered load on the factors identified statistically through the analysis. To interpret the factors it is necessary to inspect which variables load on each factor. In the case of my study, the Principal Component Analysis was used to determine to what extent the tests were measuring the same construct (i.e., as in a single factor solution) or separate constructs (i.e., as in a multi-factor solution).

Table 4.3 displays Pearson Product Moment Coefficients which were calculated among the three test measures. The error correction test was correlated significantly with the other tests but more strongly with the writing test ($r = 0.74$), which, on the other hand, was correlated less strongly with the dictation test ($r = 0.59$). As shown in Table 4.4, the principal components analysis revealed that scores on the individual tests loaded strongly on the same factor. That is to say, all three test scores loaded at 0.77 or higher on Factor 1, accounting for more than 70% of the total variance.

As a result of these analyses showing the interrelatedness of the three tests, as well as for the purpose of making the analyses for the inferential statistics parsimonious, the results in the main sections will be reported using total test scores only (i.e., average scores for the three tests). The Cronbach alpha for the pretest total scores was 0.85. As we will see, this data analysis procedures and reports of total test scores will be repeated in later chapters.

Table 4.3 Correlational matrix for the three tests (pretests)

Test	Dictation	Writing	Error correction
Dictation		0.59	0.64
Writing	0.59		0.74
Error correction	0.64	0.74	

Table 4.4 Principal component analysis of the three tests (pretests)

Component	Total	% of variance
1	2.07	78.52

Test	Component 1
Dictation	0.89
Writing	0.83
Error correction	0.77

4.3.2 Results

Descriptive statistics for the total test scores on the dictation, writing and error correction tests are presented in Table 4.5.

Figure 4.2 provides a visual representation of the mean total test scores for the three testing periods – pretest, posttest 1 (immediate posttest) and posttest 2 (delayed posttest) – for the two CF treatment groups and the control group. A one-way ANOVA showed no statistically significant group differences in the pretest total scores among the three groups, $F(80, 2) = 1.54$, ns.

Table 4.5 Group means and standard deviations for total test scores

	Pretest		Posttest 1		Posttest 2	
	M	SD	M	SD	M	SD
Oral recast group ($n = 26$)	46.3	15.0	52.6	15.5	54.0	16.4
Oral metalinguistic ($n = 26$)	50.4	14.0	61.4	15.0	63.4	16.9
Control group ($n = 28$)	48.3	14.2	52.1	15.6	51.2	16.2

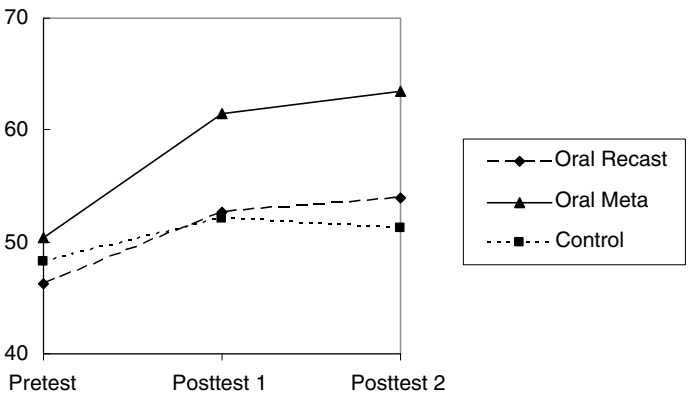


Fig. 4.2 Mean total test scores versus time

Table 4.6 Repeated measures ANOVA across the three treatments and the three testing periods

Source	*df*	*F*	*P*
Between students			
Corrective feedback treatment (CFT)	2	2.41	0.09
Error	77	(645.6)	
Within students			
Time	1.85	43.1	<0.001
Time × CFT	3.7	5.31	<0.01
Error	142.5	(37.5)	

The total test scores for the two treatment groups rose over time whereas the control group's scores varied little from one test time to another. The figure also shows that the metalinguistic correction group (henceforth metalinguistic group) outscored the recast group on both posttest 1 and posttest 2.

In order to examine if the differences in group scores over time were statistically significant, a two-way repeated measures analysis of variance (ANOVA) was performed with total scores as a dependent variable and with Time (pretest, posttest 1, posttest 2) and Corrective Feedback Treatment as independent variables. Table 4.6 shows the results of the analysis.

As can be seen in Table 4.6, there was no significant main effect for CF, indicating that the two CF groups on the whole did not perform significantly better than the control group on total test scores when Time was controlled for. However, there was a significant Time effect and Time × Treatment interaction, indicating that the groups performed differently from each other over time. To isolate where the significant differences lie among the groups over time, two-way ANOVAs with post hoc multiple comparisons between the groups were performed. The analyses revealed that in posttest 1, the metalinguistic group performed better than both the recast group and the control group on total test scores, $F(2, 77) = 3.06$, $p < 0.05$. Also, in the delayed posttest/posttest 2, the metalinguistic group was superior to the other two groups on total test scores, $F(2, 77) = 4.01$, $p = 02$. There was no significant difference between the recast and the control group.

The statistically significant differences that emerged from these analyses are summarized in Table 4.7.

On completion of the delayed posttests, learners were given an exit questionnaire asking two questions relating to learner awareness of the focus of the research

Table 4.7 Summary of statistically significant between-group differences

	Total test scores
Posttest 1	Oral meta > Control*
	Oral meta > Oral recasts*
Posttest 2	Oral meta > Control**
	Oral meta > Oral recasts*

*$p < 0.05$. **$p < 0.01$.

Table 4.8 The results of two exit questionnaire items

	(1) What do you think the focus of the tasks/tests was? (four multiple choice options)				(2) What you think you learned from this? (open ended)		
	Writing	Grammar	Vocabulary	General	Articles	Grammar	Others
Recasts	6	2	6	12	0	6	20
($N = 26$)	23%	8%	23%	46%	0%	23%	77%
Oral Meta	5	16	3	2	9	10	7
($N = 26$)	19%	62%	12%	8%	35%	38%	27%
Control	10	2	1	15	0	2	26
($N = 28$)	36%	7%	4%	54%	0%	7%	93%

(see Fig. 4.1). The students' responses to this questionnaire were tabulated and the results are presented in Table 4.8. Pearson's Chi-Square (χ^2) tests (with Haberman's adjusted residuals of greater than ± 2.0) showed that the pattern pointing to the superiority of the meta group in this respect was significant for both Item 1: $\chi^2(2, N = 82) = 6.61,\ p < 0.05$ and Item 2: $\chi^2(2, N = 82) = 6.70,\ p < 0.05$.

It is clear that the students in the metalinguistic group were more likely to identify the focus of the study as relating to grammar than those in either the recasts or control groups. This difference is also reflected in the students' responses to the question asking what they thought they had learned from the lessons: again, the students in the metalinguistic group differed from those in the other two groups in that they thought they had learned some grammar. However, less than half of the students in the metalinguistic groups recognized the precise target of the instruction (i.e., articles).

4.3.3 Discussion

The study addressed the relative effects of recasts and metalinguistic correction on the acquisition of the English definite and indefinite articles. The results presented in the preceding section show that in the posttests as well as delayed posttests, the metalinguistic group outperformed both the control and the recast groups. On the other hand, there was no significant difference between the recast and the control group. While both feedback types were input-providing in Ellis' (2006) categorization of CF, they were different in two major ways: the degree of explicitness and the nature of input provided in the feedback. Metalinguistic correction is explicit whereas recasts are considered implicit. The former provides input containing metalinguistic comments relating to the correct form while the latter provides input that simply contains the correct form. Metalinguistic feedback also leads to a longer time-out from communicating and thus affords more time for noticing the corrected feature. What the results of this study show is that the more informative and more noticeable type of correction (metalinguistic correction) resulted in the acquisition of articles whereas the simpler and more implicit type of correction (recasts) did not.

The positive effect of metalinguistic correction reported in the study can be explained in terms of Schmidt's (1995) two levels of awareness (i.e., noticing and understanding). According to Schmidt, 'noticing' is a crucial step towards acquisition while 'understanding' – though unnecessary – can lead to greater and deeper learning. It is not unreasonable to assume that understanding entails noticing while the reverse is not always true. It is, therefore, perhaps not so surprising that metalinguistic CF proved more effective than the recasts. Metalinguistic correction is likely to have promoted not only noticing but also understanding by raising consciousness about the underlying rule.

The results of this study resemble those reported earlier in Carroll and Swain's (1993) study. They found that, among four implicit and explicit CF types (including recasts), the most effective CF type in helping learners to acquire English dative alternation was the most explicit type of feedback, which consisted of indicating the error the learners had made and giving explicit metalinguistic explanation. Ellis et al. (2006) also found metalinguistic feedback superior to recasts in helping learners to acquire regular past-tense. In their study, however, the stronger effect for the metalinguistic feedback was evident only in the delayed posttests, whereas in the present study a beneficial effect was found in both immediate and delayed scores gains. Both studies involved a relatively short treatment (1 h in total), and in both studies the target linguistic features were morphological in nature. However, the operationalizations of metalingustic CF differed. Whereas the metalinguistic feedback in Ellis et al. constituted an output prompt (Lyster, 2004), consisting of a metalinguistic clue without provision of the correct form, the metalinguistic feedback in the present study provided both the correct form and grammatical explanations. This difference in the nature of the metalinguistic feedback in the two studies can explain their different findings. Simply providing learners with metalinguistic comments may 'prime' the learners, but they need time to use the explicit information they obtain from the feedback to acquire the feature. On the other hand, providing learners with the correct form together with metalinguistic information affords both positive and negative evidence, which together are sufficient to produce an immediate effect.

Overall, the findings of my study lend empirical support to Seedhouse's (1997) recommendation that teachers should employ an overt direct correction strategy rather than implicit, non-threatening and mitigating CF strategy. It also supports Spada and Lightbown's (1999) claim that learners need explicit correction including metalinguistic information to overcome learning difficulty.

Recasts have been shown to be facilitative of learning when they target a single feature intensively (Doughty and Varela, 1998; Han, 2002; Long et al., 1998; Mackey and Philp, 1998). A good question, then, is why the recasts had no positive effect in the present study. Two explanations can be offered. First, the recast treatment used in this study was short (two sessions of approximately 20 min each). It can be argued that if recasts had been provided to the learners over a longer period of time, the gains might have been sufficient to achieve statistical significance. Second, it may be that the recasts involving article errors were not sufficiently salient for learners to notice their corrective function. These two limitations were not evident in the studies that have found a positive impact of recasts on learning. For example, Han's (2002) study was longitudinal involving the treatment of recasts over

several months. Doughty and Varela (1998) used corrective recasts, in which the error was highlighted by way of repetition and then, if needed, immediately followed by a recast with emphatic stress on the corrected form. The design of these studies ensured that the recasts were not implicit/non-salient and thus the learners were more likely to have noticed the corrected features.

Schmidt (1990, 2001, 1995) hypothesized that noticing is necessary for learning to take place. CF, as negative evidence, is viewed as important because it helps learners to notice the gap between their erroneous utterances and the target language. However, the extent to which recasts are 'noticeable' has been the subject of some debate in the recent CF literature (Lyster, 1998a; Mackey et al., 2000; Nicholas et al., 2001). The findings of the current study are explicable in terms of Lyster's argument that recasts are not an effective type of feedback because learners often fail to perceive them as corrective, treating them instead as confirmation checks or repetitions (Lyster, 1998a, 2002, 2004; Lyster and Ranta, 1997).

Moreover, the choice of target structure (indefinite and definite articles distinguishing the first and second mention of a referent in NPs) probably does not constitute an ideal target feature for recasts in communicative tasks. Articles lack salience, even when attention is drawn to them by means of a recast. Consider the following Example 4.6 taken from the current classroom data. Here the learner failed to perceive the corrective force of the teacher's recast. A post-hoc interview with the learner revealed that he thought that his pronunciation was wrong.

Example 4.6
S: So he took a snake home (note: snake has been mentioned previously).
T: Ok, he took THE snake home? The boy took THE SNAKE.
S: Yes, snack/snak/, snake/sneik/ home.

Research has demonstrated that the noticing of the corrected feature in recasts depends largely on the linguistic feature that is being targeted (Egi, 2004; Mackey et al., 2000; Philp, 2003). Some linguistic features are inherently more noticeable than others. The results of the exit questionnaire revealed that no one in the recast group recognized that articles were the target of the treatment and tests whereas more than half of the students in the metalinguistic group responded that the focus was on grammar and more than 20% of the students in this group specifically identified articles as the focus of the instruction. In short, it seems clear that the corrections of the articles in the recasts were not attended to by the learners. Unless recasts are enhanced in some way, they run the danger of simply blending into the ongoing communicative flow of the interaction.

4.3.4 Summary and Concluding Comments

My study suggests that recasts do not constitute an effective CF strategy in the classroom. As Ellis and Sheen (2006) point out, the claim that implicit recasts, which arise naturally from negotiation/incomprehension, create an optimal condition for cognitive comparison (Long and Robinson, 1998) needs to be shown empirically. While there are laboratory type studies that do support this claim (e.g.,

Han, 2001; Mackey and Philp, 1998), it has not been convincingly demonstrated in classroom studies.

It should be noted, however, that recasts can be made quite explicit depending on their characteristics and the teachers' and learners' orientation to form in a communicative context (Sheen, 2006). Thus, it would be wrong to dismiss recasts out of hand. It can be argued that for recasts to work for acquisition they must create the conditions that lead learners to notice the gap between their own production and target forms. Doughty and Varela's (1998) study, whose research design made recasts quite explicit, was successful in this respect.

My study does lend support to metalinguistic feedback when this is combined with direct correction of learner errors. Such feedback is noticeable and also contributes to learners' understanding of their errors. In general, the benefits of metalinguistic feedback may have been underestimated, especially in contexts where Communicative Language Teaching and implicit knowledge/learning are prioritized.

My study extended previous research on oral CF in a number of ways. It constituted one of the first classroom-based studies to examine CF. Prior to my study, there were only a few quasi-experimental studies involving intact classrooms (e.g., Doughty and Varela, 1998; Ellis et al., 2006; Lyster, 2004). They examined the relative effects of implicit and explicit CF, keeping constant the input-providing nature of both. Other studies that have investigated these two types of CF have confounded them with the input-providing/output-prompting distinction. My study also examined CF in the context of communicative activities where there was no form-focused instruction directed at the target structure. In other words, it was able to show the independent effects of CF.

In the next section, I will examine some of the experimental research that has been published subsequent to my own study. This research, like my own study, was informed by cognitive-interactionist theories of L2 acquisition.

4.4 Subsequent Experimental Research

As I have already pointed out, there appears to be a difference in the effect that recasts have on L2 acquisition depending on the context. In laboratory settings where learners meet one-on-one with a native speaker (NS), any NS utterance may be perceived as some sort of feedback. Recasts are therefore likely to be noticeable and consequently to have an effect on learning. In contrast, learners may fail to see the corrective force of recasts in a classroom setting and thus not notice which linguistic feature has been corrected. While this is a view not held by all researchers (see, for example, Gass, Mackey and Ross-Feldman (2005)), the case for contextual effects has strengthened. Lyster and Izquierdo's (2009) study produced clear evidence to show that the research context (depending on whether it is dyadic interaction in laboratories or teacher-class or group interaction in classrooms) influenced learning outcomes.

My own interest in CF is motivated by its potential pedagogical significance. For this reason alone, I consider that classroom-based studies (where the teacher typically interacts with a number of students) are crucial. They afford more ecological validity and thus constitute a more acceptable basis for pedagogical recommendations. For this reason I intend to limit consideration of recent CF studies to those that were conducted in classroom contexts. Table 4.9 summarizes these studies.

The five studies outlined in Table 4.9, like my own study, have one thing in common. They show that CF facilitates interlanguage development. However, they differ in regard to which CF strategies have been found to be effective.

The studies point to the following generalizations about corrective feedback:

(1) CF contributes to L2 acquisition in a classroom setting. All the studies in Table 4.9 demonstrate this.
(2) The effectiveness of CF depends on whether the corrections are noticed and attended to by the learners. Mackey (2006), for example, found that CF was more effective when learners reported noticing it.
(3) Different types of CF produce differential effects on learning. The findings of the earlier experimental studies and my own study are supported by those of these later studies. Prompts are more effective than recasts (Ammar and Spada, 2006); explicit feedback is more effective than implicit feedback (Ellis et al., 2006).
(4) The effectiveness of CF is mediated by a number of learner internal factors (e.g., the learner's proficiency level and individual difference factors such as motivation and learner attitudes). For example, Ammar and Spada (2006) found that prompts were more effective than recasts, but only for low proficiency learners. These mediating effects will be considered in greater depth in Chapter 7.
(5) The effectiveness of CF also varies according to the linguistic feature that is targeted by the feedback. Ellis et al., 2006 reported different effects for recasts and metalinguistic feedback for past tense -'ed' – and comparative -'er'. Yang and Lyster (2010) found prompts directed at regular past tense -'ed' – more effective than recasts, but found no difference for irregular past tense forms.
(6) The extent to which CF is shown to be effective depends on how acquisition is measured (i.e., whether the measurement taps implicit or explicit knowledge). Loewen and Nabei (2007) reported an effect for CF on an untimed grammaticality judgment test but no effect on a timed test.

4.5 Computer Mediated Corrective Feedback Research

The research I discussed in previous chapters characterized corrective feedback as a discourse move that occurs in face-to-face interaction. However, in the era of online distance learning, internet chat and mobile computing, SLA researchers are increasingly investigating the role of the corrective feedback in Computer Mediated Communication (CMC).

Table 4.9 Recent classroom studies investigating the effects of oral corrective feedback on L2 development

Study	Participants	Target structure	Design	Tests	Results
Ammar and Spada (2006)	64 ESL students in three intact grade 6 classes in Montreal	Target feature: third-person singular possessive determiners	Two groups; (a) extensive explicit corrective feedback during normal class activities, (b) limited explicit corrective feedback; 10 class periods	Meaning-oriented contextualized grammaticality judgment task (a passage correction task) and oral picture description task for all test; computerized task (for pretest and immediate posttest); listening comprehension test and vocabulary test (for the delayed posttest)	(1) Prompts and recasts were more effective than no CF with low-proficiency learners. (2) Prompts were more effective than recasts with low-proficiency learners. (3) Prompts and recasts were equally effective for high-proficiency learners.
Mackey (2006)	28 ESL learners in a university-level program (high-intermediate level)	Questions, plurals, and the past tense	Experimental (with interactional feedback) and control group	Pretest-posttest (3 tasks designed to elicit 3 target forms) On-line learning journals, stimulated recall interview, questionnaire responses	(1) When interactional feedback is provided on L2 forms, learners report noticing those forms more than when feedback is not provided. (2) There is a positive relationship between noticing and learning for question formation.

Table 4.9 (continued)

Study	Participants	Target structure	Design	Tests	Results
Ellis (2007)	Three low intermediate classes of adults in a private language school in New Zealand	English past tense '-ed' and comparative 'er'	Two experimental CF groups (meta CF and recasts) and a control group with pretest-posttest 1-posttest 2	Three testing instruments: (a) an oral imitation test, (b) an untimed GJT and (c) metalinguistic knowledge test	Recasts and meta CF were equally effective for both 'ed' and 'er', but meta CF was more effective than recasts for the comparative 'er'.
Loewen and Nabei (2007)	66 EFL Japanese university learners (beginner to intermediate levels)	English question formation	Three different CF types: meta CF, recasts and clarification requests	(a) a timed GJT, (b) an untimed GJT and (c) an oral production task	On a timed GJT, all CF types were equally effective but no CF effects were found on the untimed GJT and oral production task.
Yang and Lyster (2010)	72 EFL Chinese university learners (in their second year, majoring in English language and literature)	Irregular and regular past tense forms	Two experimental CF groups (prompts and recasts) and a control group	Pretests/immediate posttests and 2 week delayed posttests: 4 measures of each oral and written production tests	Both types of CF produced a significant effect; the prompts on all 8 measures, the recasts on 4. The control group improved on 3 measures. Prompts produced a greater effect than recasts on regular past-tense forms while both CF types were equally effective on irregular past-tense forms.

While Computer Mediated Communication (CMC) research is considered a relatively new area of inquiry in SLA, there is now a body of research that points to the power of computer-mediated communication (CMC) to change the way language learning and teaching takes place (Egbert et al., 2009). CMC is a powerful tool for overcoming 'the historical divide between speech and writing' (Warschauer, 1997, p. 472), allowing for human interaction that can be 'easily transmitted, stored, archived, reevaluated, edited and rewritten' (Warschauer, 1997, p. 472).

In one of his early papers, Warschauer (1997) provided a conceptual framework for CMC research and theory by articulating five key characteristics that distinguish CMC from other modes of communication: (a) text-based and computer-mediated interaction; (b) many-to-many communication; (c) time- and place-independence; (d) long distance exchanges; and (e) hypermedia links.

Tapping into these characteristics, CMC research has explored different modes of communication and has shown that learners tend to use more complex L2 structures in a CMC setting than in a face-to-face environment. For example, Salaberry (2000) investigated whether pedagogical tasks in a CMC setting afforded a more beneficial learning environment for learning Spanish past tense morphology. He reported that the computer-mediated interaction tasks were superior to the face-to-face oral tasks for promoting L2 development and suggested that the discoursal features of text-based CMC (e.g. the written interactional format) contributed to this by allowing learners to focus on both form and meaning as well as promoting metalinguistic awareness. This advantage of text-based chat rooms was also noted by Lai and Zhao (2006). In an exploratory study, they examined the extent to which students noticed their own errors in internet chats vs. face-to-face conversations and suggested that text-based online chat was more likely to promote learner noticing.

Given these apparent differences in the mode of communication between face-to-face interaction and CMC settings, researchers have also been interested in examining the role CF played in promoting L2 learning in CMC.

Some of the earlier studies looked at the effectiveness of CF in Computer Assisted Language Learning (CALL). For example, Nagata (1993) compared computer-delivered feedback with and without metalinguistic explanations directed at learners' errors in the use of Japanese passive structures and found that metalinguistic feedback was more effective than feedback with no metalinguistic comment. Another study by Sanz and Morgan-Short (2004) also investigated the effect of explicit CF and explicit information on the acquisition of Spanish word order. Their learners were divided into four groups which differed depending on whether they did or did not receive an explicit explanation of the target feature and whether they did or did not receive explicit feedback. The groups engaged in computer learning activities involving an input processing task. They found no significant differences among the four experimental groups and argued that explicit feedback does not play a crucial role in facilitating L2 learning from processing instruction.

These CMC-CF studies were asynchronous in that the feedback was not provided simultaneously as it would be in face-to-face interaction. The computer-mediated equivalent of oral CF in the classroom requires a synchronous computer-mediated communication (SCMC) environment, also known as internet video chat or text-based chat (Blake, 2009), with the latter receiving the greater attention from

researchers. For example, Loewen and Erlam (2006), in their replication of Ellis et al. (2006), collected data from group text-chat interaction in order to compare the effects of recasts and metalinguistic prompts on learning outcomes. Contrary to the positive effect of metalinguistic feedback reported by Ellis et al. in a traditional classroom, Loewen and Erlam found that their synchronous computer-mediated (SCM) – CF did not result in significant gains. They suggested that their failure to find an effect for CF may have been due to the fact that their learners were at the beginner level and thus not developmentally ready for the target feature. They also noted that the different discoursal natures in the chatroom and face-to-face classroom may have influenced learners' ability to benefit from CF. Sachs and Suh (2007) reported similar results in a CMC-CF study that investigated recasts. They reported no difference in learning gains resulting from enhanced and non-enhanced recasts. Sauro (2009), like Loewen and Erlam (2006), conducted a comparative study of recasts and metalinguistic prompts and found no significant difference in the learning outcomes of the two types of CF. However, their results differ from those of Loewen and Erlam in that the SCM-CF produced a positive effect on learners' short-term development of L2 grammar.

These three SCMC-CF studies are experimental in design. Descriptive and observational studies have also been conducted. For example, Smith (2005) examined learner uptake and repair when his intermediate-level ESL learners engaged in jigsaw tasks in a SCMC environment and reported there was no significant relationship between degree of uptake (with or without repair) and the learners' acquisition of L2 vocabulary items. He also observed that the learners in his synchronous CMC setting produced relatively little uptake.

A key question is to what extent the differences between face-to-face and CMC environments affect CF. Several researchers have recently explored this. For example, Iwasaki and Oliver (2003) compared CF (in the form of recasts and negotiation of meaning) in a SCMC setting and CF in face-to-face verbal interactions. They found that CF and learner uptake following CF occurred less frequently in an online chat context. Most recently, Loewen and Reissner (2009), in their examination of the frequency and characteristics of incidental focus-on-form (CF included) in three different learning environments – internet chat moderated by the teacher vs. internet chat by students only vs. traditional classroom. They observed that the traditional face-to-face classroom generated the highest number of focus-on-form episodes involving responses to learner grammatical and lexical errors and the unmoderated (i.e., teacher absent) chat setting the lowest frequency. Given these findings, further research is needed to uncover the extent to which the mode of communication influences the effect of traditional and computer-mediated CF on learning, as well as their differential contributions to other aspects of L2 proficiency such as the fluency and complexity of learners' L2 production.

Whereas oral CF research involving face-to-face interaction has produced ample evidence of the acquisitional value of CF and has also shown that some types of CF are more effective than others, computer-mediated CF research has not produced such robust results. This is somewhat surprising. There are good reasons for believing that a technologically enhanced environment constitutes an ideal context for promoting learner noticing and learner output and thereby facilitating second

language development. This is because CF in a SCMC setting is likely to be salient and allows for more processing time than CF in a regular classroom interaction setting (Sauro and Smith, 2010). For example, unlike the ephemeral nature of CF in spoken interaction, CF in a chat window can be easily retrieved via scrolling back and thus potentially affords greater learning opportunities (Smith, 2005). This begs the question as to why CMC-CF research has produced less favorable results than those found in mainstream CF research. One explanation may lie in the way in which people orientate to using language in a chat room. While text-based chat can increase the noticeability of linguistic forms due to its written nature, this is only likely to occur when learners are oriented towards linguistic form. However, in most informal online chats, learners are naturally inclined to focus on meaning especially when there is no one to monitor their conversation. A good example of this phenomenon can be found in Loewen and Reissner (2009). The teacher absent chatroom was not effective in eliciting focus-on-form episodes, suggesting that such an unmonitored chat environment is not facilitative of learner noticing and learner attention to form. There are also many other variables associated with online learning environments (e.g., learners' familiarity with the technology and their ability to focus on the on-screen conversations), which may interfere with the processes that facilitate learning.

In fact, Blake (2009) reported that his participants in the internet chat room expressed skepticism about SCMC learning through their exit interview even though his study demonstrated strong learning gains in the fluency of the learners as a result of online activities. Given that an increasingly large number of online language courses are being offered around the globe, computer-mediated CF research is likely to be a key area of inquiry in the future with potential benefits for both language teachers and educators. What is needed are fine-grained studies of the kind that are now being conducted in face-to-face classrooms in order to tease out the factors that influence when CMC-CF works for learning and when it does not work.

4.6 Other Approaches to Investigating CF

As I have previously noted, mainstream oral CF research (e.g., Doughty and Varela, 1998; Han, 2002; Long et al., 1998; Lyster and Ranta, 1997; Sheen and Lyster, 2010) has been informed by cognitive-interactionist theories. This approach to SLA has flourished since the 1970s, but it has also been subjected to criticism (Firth and Wagner, 1997, 2007) on the grounds that it ignores the social dimension of learning. The last 10 years in particular have seen the advocacy of sociocultural and sociocognitive theories that emphasize 'learning-as-participation' rather than 'acquisition' (i.e., a purely individual mental process that takes place irrespective of the social context) – see Sfard (1998). This alternative view of how L2 learning takes place treats corrective feedback not just as a source of data for learning but as an interactional site in which actual learning takes place. I will conclude this chapter with a consideration of a number of key studies that have adopted this perspective.

4.6.1 Studies Based on Sociocultural Theory

This section reviews CF studies that are grounded in Sociocultural Theory (SCT). As mentioned in Chapters 1 and 2, Aljaafreh and Lantolf's (1994) study was seminal in staking out an alternative approach to investigating the role of corrective feedback in L2 acquisition.

Figure 4.3 shows Aljaafreh and Lantolf's (1994) 'regulatory scale'. As noted in Chapter 2, it reflects the extent to which a tutor's oral feedback on the errors students made in their writing was implicit or explicit. Aljaafreh and Lantolf's detailed analyses of selected feedback protocols showed that the tutor's degree of scaffolding for a particular error gradually became less explicit. They argued that the fact that the learners needed less assistance was itself evidence that acquisition was taking place as the learners moved from 'other-regulation' to 'self-regulation'. In other words, linguistic forms were acquired first in interaction before becoming internalized. Corrective feedback served to mediate this process. According to Aljaafreh and Lantolf, CF is effective if: (1) CF provision is gradual in the sense that it does

0. Tutor asks the learner to read, find the errors, and correct them independently, prior to [or at the beginning of] the tutorial.
1. Construction of a 'collaborative frame'* prompted by the presence of the tutor as a potential dialogic partner.
2. 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 the 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.

* 'A collaborative frame' refers to the collaborative setting constructed between the tutor and the learner as the tutor is introduced into the situation as a potential collaborative partner.

Fig. 4.3 Aljaafreh and Lantolf's (1994) regulatory scale – implicit (strategic) to explicit

not give more help than necessary at any single time; (2) CF is contingent on the learner's actual need, thus the amount of support provided diminishes as learners demonstrate they can perform a language skill independently; (3) CF is dialogic, involving dynamic assessment (i.e. the provision of CF is tailor-made to help the learner to construct a Zone of Proximal Development (ZPD) – defined as the distance between what learners are able to accomplish with the assistance of others and without it (Vygotsky, 1978, 1987). In short, in order for CF to be effective it must be negotiated with the learner in real time.

Building on Aljaafreh and Lantolf's (1994) study, Nassaji and Swain (2000) carried out a small-scale experimental study designed to examine what effect finely-tuned feedback had on learners' acquisition of grammatical forms. They compared two learners, one of who received feedback in accordance with the regulatory scale and one of whom received entirely random feedback when engaging in dialogic interaction with the tutor. While acknowledging the limitations and methodological problems of their study, Nassaji and Swain reported that the ZPD student (i.e. the student who received finely-tuned feedback) demonstrated consistent growth over a course of 5 weeks whereas the non-ZPD student did not. They contend that their quantitative and qualitative analyses lend support to the effectiveness of corrective feedback directed at helping learners construct a ZPD.

A development of Aljaafreh and Lantolf's research can also be found in Poehner's work on 'dynamic assessment' (see Poehner and Lantolf, 2005; Poehner, 2008). To illustrate, learners of French in Poehner and Lantolf's study were asked to narrate a story in past tense following a short video-clip. Upon repeating the same task, the learners received 'highly flexible' (p. 246), interactive assistance in which a native speaker interlocutor (the 'mediator') provided scaffolded CF involving vocabulary, verb tense and other linguistic problems. In this process, Poehner and Lantolf showed how the mediator (the 'tester') varied the specific CF strategies he used at different times with the same learner and also with different learners. For example, in the case of one learner, he initially used quite direct clues (e.g., 'in the past') and subsequently, when addressing the same linguistic problem, more indirect means (e.g., 'there's something there with the verb'). Poehner and Lantolf also suggested that the nature of the mediation provided for this learner and another learner revealed them to be at different stages of development in their ability to self-regulate their use of French past tense forms.

As reflected in these studies and as highlighted in Section 2.4, SCT-oriented CF studies have sought to show how scaffoding CF helps learners to self-regulate their L2 learning by stressing the need to vary CF strategies according to learners' developmental level (i.e., ZPD). This is perhaps the most fundamental difference between the SCT and cognitive-interactionist perspectives on CF, which (as we have seen in the preceding sections of this chapter) has searched for the most effective type of CF for promoting acquisition.

Another illuminating study based on the sociocultural approach is Ohta (2000b). She investigated Japanese adult classroom learners of English and their responses to recasts over an entire academic semester. Instead of using the cognitive/interactionist paradigm and its traditional coding system, she examined

individual students who received recasts and other members of the class who overheard the recasts in order to shed light on how learners process CF in the classroom, as well as the salience of recasts. Ohta focused on the private speech of the students. In other words, she defined learner responses not as the oral responses immediately following the teacher's CF but as the private speech of individual learners following CF. 'Private speech' – a sociocognitive notion – provides a window into how learners actually engage with CF in the classroom. Ohta considers private speech 'to be a creative locus of linguistic manipulation and hypothesis testing, a covert social space in which learners actively involve themselves in language lessons when they are not the focus of teacher attention' (p. 30). Ohta's learner-centered analyses revealed that CF was beneficial not only to those who were on the receiving end of CF, but also to those who were listeners. In both cases, the learners often produced utterances that were only audible to themselves (i.e., in private speech or in choral responses). She also documented the ways in which collaborative interaction among peers moving 'outward from private speech, an intrapsychological speech form, to interpsychological speech – social interaction as it occurs in the context of peer interactive tasks' (p. 73) facilitates the construction of ZPDs. In short, Ohta's qualitative case study of actual classroom practice using the lens of private speech illustrates how learners engage in receiving CF and benefit from it.

4.6.2 Studies Utilizing Conversational Analysis

Another research paradigm that has served to investigate CF is conversation analysis (CA). As noted in Chapter 2, CA adopts an emic perspective for analyzing how participants in a conversation are able to achieve mutual understanding. The CA methodology involves the micro-analytic moment-by-moment study of what is happening in interaction. It involves the narrow transcription of the utterances that occur in an oral interaction – including suprasemental features, turn sequences, and overlaps. It aims to uncover how shared social meanings and the social relationships among participants shape a conversation and make it possible (Waring, 2008).

The relevance of CA to CF research can be found in the notion of 'repair' and 'self-repair'. Teacher's corrective move in the CA paradigm is conceptualized as 'repair' whereas the same term refers to a learner's correct response following the teacher's CF. CA researchers analyze turn sequences involving teachers' repair techniques (i.e., CF types) with a view for characterizing how such sequences are accomplished (Seedhouse, 2004). Like SCT theorists, conversational analysts are concerned to show how learning occurs within an interaction involving repair.

A key CA study of 'repair' in a classroom context is Seedhouse (1997). This was previously discussed in Section 2.5. His research was dealt with in some detail in Chapter 2 (see Section 2.5) so it will not be considered again here. Like many other researchers, he found that teachers favored recasts when correcting students' errors. Interestingly, Seedhouse concluded that although this is the preferred form of repair in everyday conversation, it was not really suited to the classroom. He argued

for more explicit forms of CF. His argument receives support from the cognitive-interactionist studies of CF that I have reported in this chapter.

However, one of the strengths of CA is that it problematizes the kinds of concepts that the cognitive-interactionist paradigm tends to assume as a given. Hauser (2005), for example, used CA to take a close look at 'corrective recast'. He was able to show that turns which would be coded as 'corrective recasts' in interactionist research did not necessarily have a corrective function for the participants, and that even when such turns did have a corrective function for the participants, they performed other functions as well. From a CA perspective, then, 'recasts' are viewed as 'individual turns' that are socially constructed and sequentially placed within an interaction. Hauser's research is significant in that it highlights the differences that exist between a CF and a mainstream SLA view of corrective feedback and demonstrates the importance of how participants orient to what is happening in a CF interaction.

However, the application of CA to CF research is still problematic as it does not address 'L2 learning'. As Ellis (2010a, p. 44) has argued it is not possible to talk about 'acquisition' without examining change and that what is needed is a clear operational definition of what 'change' involves. He suggests that to demonstrate change it is ideally necessary to show that:

1. The learner could not do × at time a (the 'gap').
2. The learner co-adapted × at time b ('social construction').
3. The learner initiated × at time c in a similar context as in time b ('internalization/self-regulation').
4. The learner employed × at time d in a new context ('transfer of learning').

Clearly, demonstrating change requires examining how the repair-work undertaken at one time leads to the modification of interactional behavior at a later time. In other words, in order for CA to contribute to our understanding of how repair assists acquisition, longitudinal studies are needed.

4.7 Conclusion

As shown throughout this chapter, oral CF plays an important role in assisting learners to learn an L2. In particular, considerable support for CF comes from a number of cognitive and psycholinguistic theories of L2 acquisition, which see CF as making a substantial contribution to interlanguage development. My own experimental study presented in Section 4.3 is framed by a cognitive-interactionist model of SLA that claims that CF can serve as an acquisitional vehicle to help learners process and convert input into intake, to develop their interlanguages and, thereby, to produce more accurate output in due process. CF promotes learning because it induces noticing and noticing-the-gap and also contributes to an understanding of specific target features.

The following are the major findings of the research I have reviewed in this chapter (see also Sheen and Ellis, 2011).

1. Learners almost invariably express a wish to be corrected.
2. Oral CF is effective in assisting learners to improve their linguistic accuracy over time; in other words, CF promotes acquisition.
3. The positive effect of CF is evident not just in careful, planned language use where learners are able to make use of their explicit knowledge of L2 features, but also in meaning-centered, unplanned language use, which calls for implicit knowledge.
4. In general, the types of CF that have the greatest impact on L2 development in a classroom context are those that are explicit and output-prompting rather than implicit and input-providing. For example, explicit correction in conjunction with metalinguistic clues has been shown to more likely result in learning than recasts.
5. For CF to work for acquisition, learners must be conscious that they are being corrected. CF that is conducted in the guise of some other speech act (for example, a confirmation check or a discourse-supporting move) may not be seen as corrective and, as a result, ineffective.
6. One function of CF is to assist the learner to self-correct (i.e., to uptake the correction by repairing the error). While the role of self-correction in oral language use remains to be clearly established, there is increasing evidence to suggest that when learners do self-correct, learning is more likely to occur.

   These general statements made about oral CF are grounded in cognitive and psycholinguistic views of L2 acquisition. As noted earlier, however, sociocultural SLA has employed a very different methodology based on the microgenetic method employed by Vygotsky. Aljaafreh and Lantolf (1994), for example, developed a 'regulatory scale' reflecting different levels of implicitness/explicitness in the feedback strategies employed by instructors responding orally to written errors in one-on-one conferences. Extrapolating from the strategies based on a sociocultural theory of mind, the following generalization can be made:
7. If learner self-correction is the goal of CF, then this might be best achieved by means of CF that are fine-tuned to individual learners' level of L2 development and their capacity to benefit from CF. One way in which this might be achieved is by teachers systematically probing for the most implicit form of CF that will enable the learner to self-correct.

While such a technique clearly has considerable potential for promoting L2 development, its applicability in typical classrooms settings remains to be demonstrated. Also, it should be clear this proposal does not accord with all the general conclusions above. Do learners benefit most from clearly explicit feedback or from feedback fine-tuned to their level of development? Future research needs to test the relative claims of cognitive-interactionist theories and sociocultural theory.

Finally, in the last decade, efforts have been made to synthesize oral CF research findings in order to provide a more robust picture of the role that CF plays in second language acquisition (Keck et al., 2006; Li, 2010; Mackey and Goo, 2007; Russell and Spada, 2006; Spada and Tomita, 2010). The latest addition to the growing body of meta-analytic studies of oral CF is Lyster and Saito (2010), who examine the effects of a number of moderating factors that influence the effectiveness of the CF in a classroom context – (a) types of CF, (b) types and timing of the outcome measures, (c) instructional setting (second- vs. foreign-language classroom), (d) treatment length, and (e) learner age. Lyster and Saito's meta-analysis is of particular interest to language teachers because it focuses only on classroom oral CF studies. Based on the data obtained from 15 classroom-based studies published since 1980, Lyster and Saito's meta-analysis revealed that the positive effect of CF was greater for prompts (than recasts) received by younger learners (of 10–20 years old) and also for long treatments of more than 3 h. It found that instructional setting, however, made no difference to CF effectiveness.

While research into oral CF has played an important role in SLA theory building, there are also important implications for language pedagogy as shown by my own study and Lyster and Saito's (2010) meta-analysis of the pedagogical effectiveness of CF in second language classrooms. One thing is very clear – teachers do not need to be afraid to correct learners' errors even in contexts where they are performing communicative tasks.

Appendix 1: Narrative Tasks 1 and 2

The Fox and the Crow



There was once **a crow** who stole a piece of cheese from a kitchen window. She **flew off** with the cheese to a nearby tree. A fox saw what the crow had done, and he walked over to the tree. "Oh, Mistress Crow, you have such lovely black **feathers**, such little feet, such a beautiful yellow **beak**, and such fine black eyes". You must have a beautiful voice. Would you please sing for me?" The crow felt very proud. She opened her beak and sang CAW-CAW-CAW-CAW. Of course the cheese fell down, and the fox ate the piece of cheese.



The Pet Snake



A boy bought a snake from a **pet** shop. He took the snake home. His mother **screamed** when she saw the snake. She told him to take the snake back to the pet shop but the owner refused to take the snake back. The boy put the snake in a box and left it on a seat in the park near his house. An old woman **found** the box. When she saw the snake she had **a heart attack**.



How would you end this story? Please write one or two sentences to complete the story.

Appendix 2: Speeded Dictation Test

Name :_____Professor: _____ Date: _____
(Directions)
There are 15 sentences in this test. The professor will read each sentence only once. So please listen carefully. After listening to each sentence, write down the sentence in the small notebook provided. Write the sentence as fast as you can. Try to write the sentence exactly as you hear it. After you have finished, turn to the next page and get ready for the next sentence. Once you finish each sentence, you must NOT return to the previous page. (Note: Do not worry about exact spelling. This is not a spelling test.)

Example 1.
You will hear:
"Money cannot buy love".
Then write, "Money cannot buy love".
And then, TURN TO THE NEXT PAGE.

Example 2.
You will hear:
"_____"

Then write, " _____."
And then, TURN TO THE NEXT PAGE.

For the professor
Total 15 items (9 indefinite articles, 13 definite articles)

Example 1: I feel good when I speak English.
Example 2: Tom speaks many languages. He's very talented.

1. I know the man who runs this college.
2. The red car across the road looks suspicious.
3. Do you know the pilot who flies this airplane?
4. I saw a movie last night. The movie made me sad.
5. John's uncle was killed in a plane crash in New York.
6. The man I met in New York became my husband.
7. There was a temple near my house. The temple burned down yesterday.
8. Can you move the car blocking my driveway?
9. Please tell me who the leader of your club is.
10. I know a lawyer. The lawyer wants to marry me.
11. Yesterday, I saw a police officer chasing your dog.
12. Jenny has a dog. The dog bit her boyfriend.
13. John is a student of biology at Bergen Community College.
14. Tom bought a car. He crashed the car the next day.
15. There was a very kind doctor in my home town.

Appendix 3: Error Correction Test

(Instructions)
Please read each statement. Each statement has two sentences that are related. One of the sentences is underlined. The underlined sentence contains at least one error. There may be more than one error in each underlined sentence. Write out the underlined sentence correcting all the errors. (Note: There are no punctuation or spelling errors.)

Example 1: Gloria have lived in New York during 2001. She really enjoys living in New York.
Answer: Gloria has lived in New York since 2001.

Example 2: John got a cold. He couldn't went to school yesterday.
Answer: He couldn't go to school yesterday.

1. Mary used to living in Chicago. She lives in New York now.
2. I look after a little girl and a little boy on Saturday. A little girl was smart but the boy isn't.
3. I took three tests yesterday. Tests was so difficult.
4. Tom quits smoking last week. He started smoking again because he is too stressed out.
5. There might be easy way to get to John's house. Can you show me his house on the map?
6. I saw a man in a car across the street. I realized that the man driving car was my brother.
7. Jen and Brad used to being so happy together. I couldn't believe that they broke up.
8. I saw a very interesting movie last night. I forgot the name of movie.
9. Last night I read a magazine and a newspaper. I don't know where a newspaper is today.
10. A young woman and a tall man were talking outside my house. Ten minutes later, a young woman was shouting at tall man.
11. I read book about New York. The author, however, was from California.
12. We rented a boat last summer. Unfortunately, boat hit another boat and sank.
13. We went to basketball game on Saturday. The players at the game were all very tall.
14. When you turn onto Paramus Road, you will see two houses: a blue one and a yellow one. I live in a blue house.
15. Is your uncle car salesman? I'm looking to buy a car.
16. Bill was so drunk last night. He couldn't even recognized his girlfriend.
17. My mother was fired yesterday. She will have to find new job.

Chapter 5
Written Corrective Feedback Research

5.1 Introduction

Although corrective feedback is typically associated with the oral presentation mode, we must not forget that language teachers tend to give valuable feedback on their students' written work and that some of this feedback is inherently corrective in nature.

Unlike oral feedback, which serves as a focus-on-form technique for drawing attention to linguistic errors learners produce during communicative activities, written feedback can be much more complex because in general it needs to address many aspects of writing such as content, organization, rhetoric, linguistic accuracy and mechanics. Most L2 writing researchers have based their research on a 'process-oriented' model of instruction to investigate the effects of written feedback (e.g., Ferris, 1999; Hedgcock and Lefkowitz, 1992; see also Chapter 3) and thus emphasized providing feedback on overall writing quality. In this respect, linguistic accuracy is just one of the aims of such feedback. Therefore, it is important to distinguish written feedback on content/organization and written feedback on lexico-grammatical errors. In this book, I have reserved the term 'corrective feedback' for the correction of lexico-grammatical errors. I will use the term 'feedback' as an umbrella term to include all types of feedback on writing.

Researchers have investigated written CF in language classrooms quite extensively, yet there have been relatively few studies of written CF. Also, many of these have suffered from methodological flaws and inconsistent approaches and have been vulnerable to criticism. In this chapter, I will report my own experimental study of the effects of two types of written corrective feedback on the acquisition of English articles by adult ESL learners in an attempt to overcome some of the criticism of previous written CF research. As in Chapter 4, I will first review the research's background to contextualize my own study by considering a number of key L2 writing studies and some methodological considerations.

5.2 Background

I will begin by focusing on research into the efficacy of written CF that was conducted before 2006 and informed my own experimental study. More recent research

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will be considered in Section 5.4. Before proceeding, I will point out some of the methodological issues that have characterized the written CF literature up to 2006. After the report of my own study, I will review some of the more recent empirical research that has addressed the role of written CF in L2 learning.

5.2.1 The Efficacy of Written Corrective Feedback: Some Methodological Issues

As noted in Chapter 1, just as researchers have debated the role of oral CF on both theoretical and pedagogical grounds, L2 writing researchers have also been engaged in debates about the efficacy of written CF. At the crux of this debate lies the question posed by Ferris (2004): 'Does written CF help students to improve in written accuracy over time?' The early research did not provide a definitive answer to this question because it failed to provide clear evidence of the effectiveness of written CF (see Ferris, 2004 for a comprehensive and influential discussion of this issue).

There are several reasons for this. They are mainly methodological. First, many written CF studies frequently cited in the debate lacked a control group (i.e., a group that did not receive CF (e.g., Polio et al., 1998; Robb et al., 1986). When CF studies had a control or comparison group, the group differences were often not statistically significant (e.g., Lalande, 1982; Semke, 1984). Moreover, the control/comparison group in such studies still typically received some kind of feedback (e.g., comments on content or organization).

Another problem comes from the fact that the studies varied in how the effectiveness of CF was measured. Some measured improvement in terms of revision only (Fathman and Whalley, 1990; Ferris, 2002), others measured improvement in essay assignments or journal entries over a period of time (Polio et al., 1998; Robb et al., 1986), while still others just measured changes from pretest to immediate posttest (Semke, 1984). A few studies measured gains in the accuracy in writing at the expense of fluency and/or the overall quality of writing (Chandler, 2003; Kepner, 1991). These differences in how the effectiveness of CF was measured make it impossible to reach any definite conclusions.

Another methodological issue has more to do with practical constraints. Few studies have directly examined written CF in true experimental settings. This is due in part to the fact that most researchers have been obliged to make use of intact writing classes where, for ethical reasons, they felt that an absence of error correction was not a possibility, as students had a right to such correction and probably expected it.

To support her position regarding the beneficial aspect of written correction, Ferris (2004) cited three studies: Ashwell (2000); Fathman and Whalley (1990); and Ferris and Roberts (2001). However, even when these researchers/practitioners did seek to conduct studies with an experimental design, the evidence from such studies was not clear-cut. For example, Fathman and Whalley (1990), in an examination of intermediate ESL college students' writing, found that feedback on form and feedback on content were equally effective in producing improvement in the students'

revisions. Ashwell (2000) also found that providing his adult learners' with grammar correction was effective in their development of grammatical accuracy in written compositions. Nevertheless, these two studies measured improvement only by examining learners' revised texts. One can argue, as Truscott (2004) did, that improvement in revisions alone cannot provide evidence that learning has occurred. In order to claim that error correction results in learning, one must examine whether the improvement in revisions carries over to a new piece of writing, or if the improvement is manifested on posttest/delayed posttest measures.

It is therefore not surprising that, due to these methodological limitations and the variation in the methods and approaches in different studies, there has been difficulty in synthesizing the research findings. This leads CF critics to argue that the studies have failed to provide valid evidence of the effectiveness of CF, and further to claim that the lack of evidence might suggest a harmful effect for CF (Krashen, 1982; Truscott, 1996, 1999, 2004). Such critics also point to practical concerns about the quality of the CF that teachers provide and also to the danger of raising the students' affective filter.

5.2.2 The Relative Efficacy of Different Types of Written Corrective Feedback

Some of the aforementioned studies, nevertheless, provide empirical evidence regarding the relative effects of different types of feedback. Most of the early written CF research was concerned primarily with comparing different types of error feedback, especially indirect feedback (Lalande, 1982; Robb et al., 1986; Semke, 1984). The underlying assumption of these studies was that CF did help and that the important issue was what kind of CF worked best.

In one of the early studies, Robb et al. (1986) examined 134 EFL students in Japan over one academic year to see if four different CF types produced differential effects on the students' improvement in their written essays. They included: (1) *direct correction*, indicating the errors and providing the correct form; (2) *coded feedback*, indicating the type of error based on an abbreviated code system; (3) *uncoded feedback*, marking the composition with a yellow text-marking pen without specifying the location of the error; and (4) *marginal feedback*, giving the total number of errors in each line in the margins of the student's paper. In all treatments, revisions were required and the instructor checked for accuracy. They found no major differences across the four treatment types.

As noted in Chapter 2, Ferris (1999) contends that indirect error correction, such as identification of errors, is more beneficial than direct correction (i.e., teacher provision of the correct forms). The former, by pushing learners to engage in hypothesis testing on their own, deepens internal processing and thereby helps them internalize the correct forms. However, empirical evidence to date suggests that there is no advantage for indirect CF over direct CF (Chandler, 2003; Lalande, 1982; Robb et al., 1986). In fact, one of the latest studies, Chandler (2003), found that direct

correction was superior to other types of indirect correction in producing more accurate writing. Chandler hypothesized that teachers' direct correction helped ESL students internalize the correct form in a more productive way because indirect feedback, while demanding greater cognitive processing, might unnecessarily delay the confirmation of students' hypothesis testing. She also reported that direct correction was the type most favored by her ESL students.

These findings point to the fact that, contrary to the suggestions found in the second language writing literature (e.g., Ferris, 2003; Ferris and Hedgcock, 2005), indirect written CF is not superior to direct CF. While numerous studies examined the differential effects of indirect CF strategies (e.g., whether it involved an error code), no study investigated two different types of direct CF. If written CF is effective and if direct CF is indeed as effective as indirect CF (if not more effective), then it is worth examining which type of direct CF benefits learners more. In fact, as we saw in Chapter 4, SLA research provides evidence to suggest that oral explicit feedback is more facilitative of learning than implicit feedback (Carroll and Swain, 1993). Moreover, the explicit knowledge provided by metalinguistic CF may help learners to develop implicit L2 knowledge (Ellis et al., 2006). This motivated my own experimental study which investigated the relative effects of two direct CF types: direct correction with and without metalinguistic information.

5.2.3 Insights from SLA

Before presenting my own study, I will consider the influence that studies of oral CF conducted within SLA had on the design of my study.

Mainstream SLA has primarily considered corrective feedback in relation to theoretical claims about the role of input and interaction (Gass, 1997; Long, 1996; Mackey, 2007a) and focus-on-form (Doughty and Williams, 1998). Oral CF as a focus-on-form technique in the classroom has generated considerable interest among SLA researchers in the last decade and there is now growing evidence that it facilitates interlanguage development; although, as we saw in Chapter 4, there is less consensus about the role of different types of oral CF (e.g., explicit vs. implicit, input-providing vs. prompts; see Ellis, 2006). In this respect, SLA may provide insights into how problems in written CF inquiries can be tackled. For example, studies of written CF and learning primarily compare different outcomes in terms of the overall improvement across many different error types. CF in theses studies is extensive (i.e., the CF targeted a wide range of errors). However, a number of SLA studies have investigated the effects of intensive CF and have been able to demonstrate that CF promotes interlanguage development when it targets a single linguistic feature repeatedly (Doughty, 1994; C. Doughty and Varela, 1998; Han, 2002; Long et al., 1998; Muranoi, 2000). One might speculate that the lack of 'focused' written CF studies may explain why researchers have been unable to demonstrate a beneficial effect for written CF on learner accuracy in writing.

It was rare to see any crossover between written CF and oral CF in terms of research design or methodology in the SLA literature; although written CF studies

often cite those of oral CF to support their findings and to strengthen their arguments (e.g., Ferris, 1999, 2004; Truscott, 1996, 1999). Written CF is theoretically different from oral CF in two major ways. First, the former is delayed whereas the latter occurs immediately after an error has been committed. Second, written CF imposes less cognitive load on memory than oral CF, which typically demands a cognitive comparison on-line, thus requiring learners to heavily rely on their short-term memory. Written CF is pedagogically different as well. Writing teachers are often involved in trying to improve content and organization while focusing on the overall quality of students' writing, in which case accuracy is often a side concern. On the other hand, teacher's provision of oral CF draws learners' attention to learners' erroneous utterances as they arise in communicative activities.

These differences are reflected in the different research designs employed by written and oral CF studies as shown in Sections 4.2 and 5.2. However, the difference between the two could be minimized if one were to investigate the extent to which focused CF can improve learners' grammatical accuracy. My study, therefore, attempted to bridge the gap between the two seemingly distinct literatures by extending the methodology used in oral CF research to the study of written CF.

5.3 Sheen's Experimental Study

My study sought to compare the effects of two types of written CF (written direct correction vs. written metalinguistic correction) on the acquisition of articles by adult intermediate ESL learners. It sought answers to the following research question:

Is there an effect of written corrective feedback on ESL learners' acquisition of English articles?

This was examined by addressing three separate subsidiary questions:

1. What effect does written direct correction have on the acquisition of English articles?
2. What effect does written metalinguistic correction have on the acquisition of English articles?
3. Which of these two types of corrective feedback has the greater effect on the acquisition of English articles?

5.3.1 Method

The method of the study was similar to that reported for the oral CF study in Chapter 4. Readers should refer to the description of the method in Chapter 4 (Section 4.3.1). In this section I will provide a brief summary of the method I

employed with more detailed information about those aspects that differed from my oral CF study.

5.3.1.1 Participants

The study was conducted in the same setting as the one described in Section 4.3.1. The participants were 5 native-speaking American teachers and their 111 intermediate-level students, representing various language and ethnic backgrounds. Class sizes ranged from 15–22. From the total students, only 91 were finally included in the sample because they completed the pretests, posttests and delayed posttests. Out of a total of 6 intact classrooms, three groups were formed: one direct correction group (N = 31), one direct metalinguistic group (N = 32) and one control group (N = 28).

5.3.1.2 Operationalizations

Written Direct Correction

Written direct correction constitutes a traditional error correction strategy which consists of indicating the location of an error on the student's text and the provision of the correct form by deleting and/or replacing the error, or by adding a linguistic element.

Written Metalinguistic Correction

Written metalinguistic correction is operationalized as indicating the location of an error, the provision of the correct form and a metalinguistic comment that explains the correct form.

Examples of the two types of error correction used in my study are shown in Fig. 5.1.

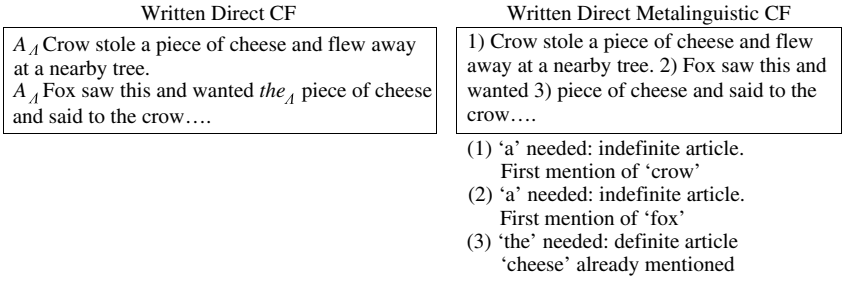


Fig. 5.1 Error correction examples

5.3.1.3 Target Structure

As described in Section 4.3.1, the linguistic focus of error correction was English indefinite and definite articles. New information is canonically marked with 'zero', 'a' or another determiner whereas given information is canonically marked with 'zero' article, 'the' or another determiner (Master, 2002). More specifically, this study focused on the two major functions of indefinite and definite articles involving 'the' as anaphoric reference and 'a' as first mention as in:

> Jenny has a dog. The dog bit her father last night.

For more information about the target structure, see Section 4.3.1 and Table 4.1.

5.3.1.4 Instruments and Procedures

Narrative Task Instruments

There were two treatment sessions. For each session, a narrative stimulus was used to elicit article errors in a written narrative from the learners. Readers should refer to Section 4.3.1 for detailed information. The section below will describe the written CF treatment procedure.

5.3.1.5 Written Corrective Feedback Treatment Procedures

The specific procedures of the treatment session were as follows:

1. First, the teacher handed out the short fable/parable with an empty writing sheet attached to it and told the students that they were going to read the story and then rewrite the story.
2. Students were asked to read the short fable/parable silently.
3. The teacher explained key words and discussed the moral of the story with the class.
4. The teacher then collected the stories by asking the students to tear off the story part and keep the writing sheet only.
5. Before asking the students to rewrite the story, the teacher read the story aloud once while the students noted down key words.
6. The students were then asked to rewrite the story as closely as they could remember.
7. The teacher collected the students' written narratives, which were then handed to the researcher.
8. The researcher corrected the narratives focusing mainly on article errors based on the correction guidelines (i.e., the CF was focused).
9. In the following class (typically 2 or 4 days later), the students took part in a corrective feedback session during which they received their narratives with corrections.

10. The students were asked to look over their errors and the corrections carefully for at least 5 min. However, the teacher did not comment further on their errors or give any additional explanation.

5.3.1.6 Correction Guidelines

Given the amount of time and labor imposed on the teachers, it was decided that the researcher would serve as the corrector. The researcher corrected all the article errors in the learners' narratives. There were between one and seven errors in the learners' narratives. A few corrections of errors other than those involving articles were made to mask the focus of the study.

There were two different types of written correction used in this CF treatment. For the written direct correction group, each correction consisted of indicating the error and writing the correction above it. For the written metalinguistic correction group, each error was first indicated with a number. Notes for each numbered error were given at the bottom of a learner's sheet. The notes indicated what was wrong using metalinguistic information and also provided the correct form (see Fig. 5.1).

5.3.1.7 Testing Instruments/Procedures and Scoring Guidelines

Three tests were administered – speeded dictation test, writing test, and error correction test. For the details of the tests as well as testing and scoring procedures, see Section 4.3.1 and Appendices 1 and 3 in Chapter 4

5.3.1.8 Test Reliability

In the dictation and writing tests, a second researcher coded a sample of 25% of the total data. The sample came equally from the pretest, posttest and delayed posttest. In the dictation test, the percentage agreement scores were 87.1%, 89.2%, and 92.1%, respectively. In the writing test, the percentage agreement scores were 78.4%, 83.3%, and 79.2%, respectively. As for the error correction test, internal consistency reliability was estimated using Cronbach's alpha. The reliability coefficient for the 14 items in the error correction test produced an alpha of 0.82, 0.86, and 0.80 for the pretest, posttest and delayed posttest respectively.

5.3.1.9 Exit Questionnaire

As in the study of oral CF reported in Section 4.3, the learners were asked to complete an exit questionnaire immediately following the delayed posttests. See Section 4.3.1 and Fig. 4.2.

5.3.1.10 Data Analysis

The procedures for the data analysis was similar to those described in the data analysis section (Section 4.3.1), so readers should refer to that for detailed information.

Table 5.1 Correlational matrix for the three tests (pretests)

Test	Dictation	Writing	Error correction
Dictation		0.54	0.68
Writing	0.54		0.72
Error correction	0.68	0.72	

Table 5.2 Principal component analysis of the three tests (pretests)

Component	Total	% of variance
1	2.03	76.5
Test		Component 1
Dictation		0.87
Writing		0.83
Error correction		0.79

As was the case for my oral CF study test scores discussed in Section 4.3.1, the test scores of the participants in my written CF research also showed the interrelatedness of the three individual tests. Keeping in line with my oral study's reporting, the results in the main sections will be reported using total test scores only (i.e., average scores for the three individual tests). What is shown below in this section is the correlational matrix and the exploratory factor analysis for two written CF and one control groups in Tables 5.1 and 5.2, respectively. These analyses, similar to those in the pervious section, indicated that all the tests were highly inter-related.

5.3.2 Results

Table 5.3 presents the descriptive statistics for total scores for the dictation, writing and error correction tests taken over the three testing periods: pretest, posttest 1 (immediate posttest), and posttest 2 (delayed posttest).

Figure 5.2 provides a visual representation of the mean total test scores for the three testing periods for each group. As can be seen, the total test scores for all three

Table 5.3 Group means and standard deviations for total test scores

	Pretest		Posttest 1		Posttest 2	
	M	SD	M	SD	M	SD
Written direct group (n = 31)	44.1	11.9	58.3	15.3	57.5	14.4
Written meta group (n = 32)	49.6	16.9	65.4	16.3	69.4	15.3
Control group (n = 28)	48.3	14.2	52.1	15.6	51.2	16.2

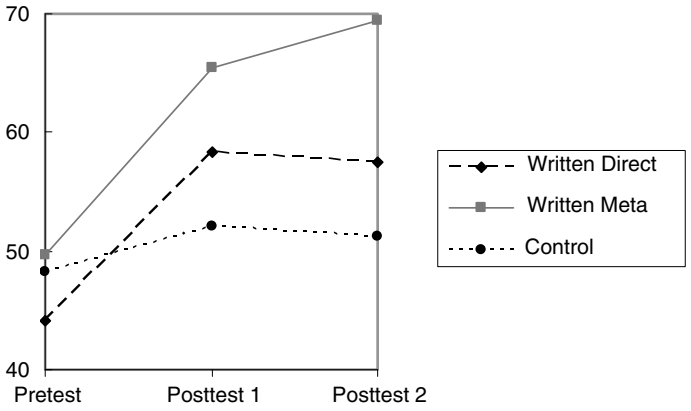


Fig. 5.2 Group means on total test scores

groups rose from pretest to posttest 1. However, the graph shows that the scores of the three groups increased at different rates from each other. For example, the difference between the written metalinguistic group and control group appears to be considerable. Although the two groups started out with very close pretest scores, the control group at the posttest and delayed posttest showed only a slight rise in scores, whereas the written metalinguistic group showed a marked increase (more than 20%) in scores.

It should be noted, however, that even the relatively moderate gains observed in the control group between pretest and posttest 1, as well as between pretest and posttest 2, were significant: $F(1, 27) = 9.57$, $p = < 0.01$, $F(1, 27) = 4.93$, $p = < 0.05$, respectively.

In order to compare the treatment and control groups' test scores, a series of ANOVAs were computed. First, a one-way ANOVA showed no statistically significant group differences in the pretest total scores among the three groups, $F(2, 88) = 1.23$, ns. To examine the differential effects of the written CF treatments, similar to the analysis of oral CF, a two-way repeated measures ANOVA was performed with total scores as the dependent variable, and with Time (pretest, posttest 1, posttest 2) and Corrective Feedback Treatment (three levels) as independent variables. Table 5.4 shows the results of the analysis.

As can be seen in Table 5.4, there was a significant interaction between Time and CF treatment, indicating that the different groups developed differentially over time. To statistically examine the differences between pairs of groups, post-hoc multiple comparison tests were performed. The results show that the direct metalinguistic group produced higher total scores than the direct correction group and the control group. One-way ANOVAs revealed that the differences in the scores were significant in both posttest 1, $F(2, 88) = 5.40$, $p < 0.01$, and posttest 2, $F(2, 88) = 11.1$, $p < 0.001$.

Tukey's post-hoc pairwise comparisons (with an alpha level of 0.05) were performed to isolate the significant differences among the three groups. These analyses

Table 5.4 Repeated measures ANOVA for written CF and control groups

Source	*df*	*F*	*P*
Between students			
Corrective feedback treatment (CFT)	2	4.79	0.01
Error	88	(617.8)	
Within students			
Time	1.80	114.7	< 0.0005
Time × CFT	3.60	16.9	< 0.0005
Error	157.9	(40.2)	

Note: Values enclosed in parentheses represent mean square errors. Within-subjects effects are corrected using the Greenhouse-Geisser correction due to a lack of sphericity in the error covariance matrix ($p = 0.005$).

Table 5.5 Summary of statistically significant group differences

	Total test scores
Posttest1	Written direct > Control*
	Written meta > Control*
Posttest2	Written meta > Control**
	Written meta > Written direct**

*$p < 0.05$; **$p < 0.01$

indicated that immediate posttest (posttest 1) results favored both treatment groups while delayed posttest (posttest 2) results favored the direct metalinguistic group. In other words, both written direct and written metalinguistic CF had a positive effect in the short term relative to the control group. This effect, however, was greater for the direct metalinguistic group than for the direct correction group in the long term. These significant contrasts are summarized in Table 5.5.

Table 5.6 shows the results of the exit questionnaire given to the learners on the same day as the delayed posttests. As discussed in Section 4.3.1, this questionnaire included two questions relating to learners' awareness of the focus of the research (see Fig. 4.2). Pearson's Chi-Square (χ^2) tests (with Haberman's adjusted residuals of greater than ±2.0) showed that the differences in the frequency across the groups were statistically significant for item 1: $\chi^2(2,\ N = 85) = 19.8,\ p < 0.001$, and for item 2: $\chi^2(2,\ N = 85) = 6.75,\ p < 0.05$.

Thus, the results of the exit questionnaire indicate that the students in the meta group were more likely to identify the focus of the study as relating to grammar than those in either the direct correction only or control groups. This difference is also reflected in the students' responses to the question asking what they thought they had learned from the lessons; the students in the written meta group differed from those in the other two groups. In the written meta CF group, more than half of the students reported that they thought articles were the focus of the instruction whereas only 25% of the students in the written direct CF group recognized articles as the

Table 5.6 The results of two exit questionnaire items

	(1) What do you think the focus of the tasks/tests was? (four multiple choice options)				(2) What you do think you learned from this? (open ended)		
	Writing	Grammar	Vocabulary	General	Articles	Grammar	Others
Written direct (N=28)	8 29%	8 29%	2 7%	10 36%	7 25%	10 36%	11 39%
Written meta (N = 29)	7 24%	18 62%	3 10%	1 3%	15 52%	8 28%	6 21%
Control (N = 28)	10 36%	2 7%	1 4%	15 54%	0 0%	2 7%	26 93%

target of the treatment. However, in comparison to the control group, in which no one recognized the specific focus of the feedback, and less than 10% thought that the feedback was targeting grammatical issues, both treatment groups were superior in raising awareness of the CF target.

5.3.3 Discussion

This section discusses the results of the three research questions: (1) What effect does written direct correction have on the acquisition of English articles?; (2) What effect does written metalinguistic correction have on the acquisition of English articles?; and (3) Which of these two types of corrective feedback has the greater effect on the acquisition of English articles? First, the issue as to whether written CF has an effect on L2 learning will be addressed. There will follow a discussion of the relative effectiveness of written direct and written direct metalinguistic correction.

5.3.3.1 The Effect of Written CF

The findings show clearly that the experimental groups outperformed the control group. That is, there was an effect for the CF treatment over and above the effect of simply repeating the tests by the control group. Both the written direct and the written direct metalinguistic CF had a positive effect on the learning of English articles in both posttests 1 and 2.

These findings are particularly noteworthy in light of the following: The present study is different from previous written CF studies in that only one linguistic feature was targeted for the provision of CF, and in that the tests measured students' written accuracy alone. During the 2 month period of my study, articles were not explicitly

taught or corrected by the teacher outside of the treatment in this study. The students in all groups had a similar level of general proficiency and received the same amount and type of instruction involving the same writing and reading materials. Thus, it can be safely concluded that the improvement from pretest to posttest in the experimental groups was the result of the corrective feedback they had received. Thus, this study provides unambiguous support for the claim that written CF of the kinds provided can lead to improved accuracy.

As noted in Section 4.2, SLA research has found clear evidence that CF is facilitative of learning when it focuses on a single linguistic feature and makes the error salient (Han, 2002; Nicholas et al., 2001). In my study, only two simple, rule-based functions of articles were treated. Also, students were familiar with the form of the articles at the beginning of the study. In this context, written CF proved effective in enabling the learners to improve their accuracy in articles over time.

An objection that opponents of written CF might raise against this conclusion is that the tests used to measure acquisition in this study allowed learners to access their explicit knowledge of articles. That is, the test scores do not constitute evidence that learners have developed the kind of implicit knowledge needed to use articles correctly in meaning-centered communication. Such an objection may not be justified, however. The dictation test did require learners to process the target feature on-line. Also, the writing test required learners to use the target structure in a meaning-focused context. This test, in particular, has high face validity in that it constitutes an example of the kind of writing that students are often asked to do in a general English class.

5.3.3.2 The Differential Effects of Written CF

The second research question examined the relative effects of two direct CF strategies (direct correction with or without metalinguistic information) on learning. The findings indicate that the two CF types had differential effects in that direct correction with metalinguistic comments was superior to direct correction without metalinguistic comments.

The superiority of metalinguistic CF over direct-only CF can be explained by Schmidt's account of the role of awareness in L2 learning. Schmidt (1995) distinguishes awareness at the level of noticing and at the level of understanding, which is a higher level of awareness. I have previously noted that whereas learner noticing involves the detection and rehearsal of linguistic forms in the input, learner understanding entails the awareness of abstract rules of language. Thus, it can be argued that whereas direct CF with and without metalinguistic comments are likely to promote awareness as noticing, only direct CF with metalinguistic comments promotes awareness with understanding.

Schmidt (1995) further contends that such conscious rule awareness arising from understanding is strongly facilitative of later learning. This is borne out by the finding of my study, namely, that the long-term gains considerably favored the direct metalinguistic group. This finding suggests, then, that the explicit knowledge gained from the metalinguistic feedback contributed to the long lasting effect of CF.

This view is supported by oral CF research. As seen in Section 4.2, Carroll and Swain (1993) found that a group who received more explicit and informative CF (i.e., direct metalinguistic CF) outperformed other CF-type groups in a study investigating the acquisition of English dative verbs. For the acquisition of English regular past-tense, Ellis et al. (2006) also found that explicit feedback (in the form of metalinguistic comments) was superior to implicit feedback (in the form of recasts). Taken together, these findings suggest that metalinguistic feedback serves to develop the learners' explicit knowledge and assist acquisition, especially in the long term. This knowledge enables learners to notice the target feature in subsequent input (N. Ellis, 2005) and also, perhaps, scaffolds learners' attempts to use articles correctly in production (DeKeyser, 1998). This thereby promotes the acquisition of implicit knowledge.

A caveat is in order regarding the different results found for the direct-only correction and direct metalinguistic correction. As mentioned earlier, perhaps the superiority of metalinguistic CF may only arise in a learning situation where CF treatments are somewhat limited (e.g., the treatment directed at the target error covers only a short period of time). Written CF research of a longitudinal kind (e.g., Kepner, 1991; Robb et al., 1986) provides some evidence to suggest that L2 writers are able to reduce errors when direct CF treatment is provided over a long period of time (typically one academic semester). It is possible, then, that direct correction alone might have eventually proved as effective as direct metalinguistic correction in improving written accuracy if it had been provided over a longer period of time. That said, my findings tend to show that, in the case of a limited treatment, CF with metalinguistic comments works better for acquisition than simply providing learners with the correct form.

5.3.4 Summary and Concluding Comments

As I noted at the beginning of this chapter, previous written CF studies have been vulnerable to criticism because of their methodological limitations and their inconsistent approach to measuring the effectiveness of written CF. The point of departure in my study was to employ a quasi-experimental classroom design that is easily replicable in order to directly compare groups with and without CF. According to Truscott (2004), such a study had been nonexistent in written CF research.

In her rebuttal of Truscott's criticism of written CF, Chandler (2004, p. 348) acknowledged the need for more carefully designed studies:

> I accept [his] argument that the efficacy of error correction for accuracy of subsequent writing can only be demonstrated by studies containing a control group which receives no correction and experimental groups which correct their errors after either receiving direct correction or having the location of their errors pointed out. So I hope someone will do such a well-designed study.

Ferris (2004) also appealed for CF studies that are comparable and replicable while lamenting the somewhat haphazard nature of written CF inquiries and their

inconclusive findings. Ferris further noted that written CF research had a long road ahead to establish a more rigorous and coherent line of research for investigating the role of CF in second language writing.

My study presented above was designed with these points in mind in order to address the central question, 'Does error feedback help L2 students' written accuracy?' Based on the data presented in this study, the answer is an unambiguous yes, and the findings of my study suggest that written CF can be facilitative of learning in two major ways.

First, focused written error correction (i.e., one linguistic structure targeted in the teacher's error feedback) can result in interlanguage development. If one was to replicate my study, the same narrative stimulus tasks could be used to investigate the effect of CF on different linguistic target structures. However, it can be argued that only one or perhaps two linguistic features should be targeted at a time.

Second, direct correction of article errors with the provision of metalinguistic information may prove more effective in reducing article errors because metalinguistic feedback seems to promote learners' awareness at the level of understanding. Metalinguistic feedback contributes to the development of explicit knowledge, which may subsequently facilitate the process of implicit learning and development of implicit knowledge (N. Ellis, 2005; R Ellis, 2005).

Taken together, the findings of my study do not support Truscott's (1996, 1999) claim that written CF is ineffective. Truscott based his claim about the ineffectiveness of written CF on acquisition on the fact that there had been no studies demonstrating its effectiveness. This constituted a challenge to researchers to develop methodologically sound studies. My experimental study was a start in this direction.

5.4 Subsequent Empirical Research

In Section 5.3, I pointed out that my experimental study extends current SLA research on CF by investigating written CF in addition to oral CF. Several empirical studies since then have investigated the role of written CF in L2 learning with contradictory results and subsequent claims. Accordingly, the debate continues.

I will first discuss a few studies that have used a methodologically robust design and have indicated that written CF is facilitative of learning.

5.4.1 Evidence in Favor of Written CF

There now exist a number of recent empirical studies demonstrating the efficacy of written CF. These studies have measured progress over time (in immediate and delayed posttests) and included a control group (which received no feedback at all).

Bitchener (2008) investigated the effect of different types of written corrective feedback on the development of L2 writing accuracy. One error category, relating to errors in the English articles 'a' and 'the', was targeted in the study, and the

benefits of written CF were analyzed in three pieces of narrative writing: a pretest, immediate post test, and a delayed post test. The participants in the study, 75 low-intermediate students at two private language schools, were divided into four groups: (a) direct written CF with oral (a 30-min mini lesson) and written metalinguistic explanation, (b) direct written CF with written explanation only, (c) direct written CF only, and (d) a control group. In the pretest, the students wrote a narrative based on a picture story. Two weeks later, the experimental groups received written CF, while the control group received no feedback except for general comments on the quality of their stories. Next, all students were asked to write a new narrative based on a set of pictures, and once again 1 week later the experimental groups received direct written CF but this time without any additional metalinguistic explanation. Two months later, in the delayed posttest, the students wrote one more narrative. The findings show that all three experimental groups improved in the immediate posttest and managed to retain their accuracy in the delayed posttest, but the group who received direct written CF with written and oral metalinguistic explanation outperformed the remaining three groups. What is interesting, however, is that only two of the experimental groups (i.e., the direct written CF with written and oral metalinguistic explanations group and the direct written CF group) outperformed the control group.

The results of Bitchener's (2008) study corroborate the results of my experimental study; namely, by showing that written CF assisted by additional metalinguistic explanation might be the most beneficial form of feedback. In Bitchener's study, however, only the students who received both oral and written metalinguisitc explanation outperformed the direct CF group. Thus, this study, unlike my own, did not demonstrate that written metalinguistic CF alone led to gains in written accuracy.

Another study by Bitchener together with Knoch (2008) also examined the efficacy of different types of written CF on the development of accuracy in the usage of the English article system (definite article 'the' and indefinite article 'a'). The participants of the study, 144 low-intermediate ESL students at two private schools and a university, were divided into four groups: (a) direct CF with metalinguistic written feedback and oral feedback in the form of a 30 min lesson, (b) direct CF with metalinguistic written feedback, (c) direct feedback, and (d) a control group. All the students wrote three pieces describing a picture story. Groups (a), (b), and (c) received direct CF on their first story (pretest) and indirect CF (indication that the choice of an article was correct or incorrect) on their second story (immediate posttest). The control group received no feedback. The findings show that all the treatment groups improved significantly between the pretest and immediate posttest in comparison with the control group; however, their progress between the immediate posttest and the delayed posttest was not significant. Regarding whether different types of direct CF affects linguistic accuracy in L2 writing accuracy, they found no significant difference between the progress of groups (a), (b), or (c). These results again suggest that direct written CF combined with metalinguistic explanation is the most effective form of error correction.

While these studies looked at the relative efficacy of direct vs. indirect written CF options, other studies have investigated the efficacy of focused CF (i.e., CF that is

directed at rectifying a specific linguistic error) as opposed to unfocused CF (i.e., CF that targets a range of linguistic errors). As discussed in Chapter 3, L2 writing pedagogy experts emphasize selective correction of learner texts, but whether this leads to actual long-term improvement in learning is a question that needs to be demonstrated empirically. Ellis et al. (2008) aimed to fill this gap by investigating the relative efficacy of focused and unfocused written CF on linguistic accuracy. Forty nine intermediate-level EFL students at a Japanese university were divided into three groups: (a) direct focused CF (CF limited to the errors in the usage of indefinite and definite articles, correct forms provided), (b) unfocused CF (a variety of errors corrected, correct forms provided), and (c) a control group (no correction provided). The students read, discussed, and rewrote three stories about animals from memory. They received written CF on each of their narratives (except for the control group) but were not asked to revise their pieces. This allowed the researchers to analyze their performance in new pieces of writing rather than in revisions. Additionally, the students were given an error correction pretest, posttest, and delayed posttest, which were used to examine their gains or losses over time. They reported that both focused and unfocused CF groups outperformed the control group in the immediate posttest. The difference in the progress between the two experimental groups was insignificant. In other words, both focused and unfocused groups in their study benefited equally from the CF they received.

The finding that there was no difference in the relative gains of the focused and unfocused group is somewhat surprising. Ellis et al., however, point out that since the focused group continued to improve between the posttest and the delayed posttest while the level of accuracy of the unfocused group remained the same, it is possible that in the long term, focused corrective feedback might have had a greater pedagogical value. Ellis et al. also admitted that their findings may reflect a methodological limitation, namely that the distinction between focused and unfocused CF was not sufficiently clear in their study.

Sheen et al. (2009) overcame this problem by carefully distinguishing between unfocused and focused CF. That is, they compared the effects of CF on a single grammatical feature (articles). The CF consisted of focused CF versus CF targeting a broader range of features (i.e., articles, copular 'be', regular and irregular past tense, prepositions). Using 6 intact adult ESL intermediate classes with a total of 89 students over a period of 12 weeks, Sheen et al. examined whether focused CF, unfocused CF, and writing practice produced differential effects on the accurate use of grammatical forms by adult ESL learners. The two focused and unfocused groups completed two communicative narrative tasks in which the students were asked to reconstruct stories and then were subsequently provided with direct CF on the targeted linguistic features (articles for the focused CF group and 5 specific error types chosen for the unfocused CF group). The writing practice group completed the two narrative tasks without receiving CF. The control group neither did the tasks nor received CF. The results show that all three experimental groups gained in grammatical accuracy over time in all of the posttests. This suggests that doing writing tasks itself is of value. On a closer examination, although both the two CF groups (focused and unfocused) significantly improved in the accuracy with which they

used a variety of linguistic features including English articles over time, only the focused CF group outperformed the control group. In other words, this study failed to demonstrate any benefit in providing unfocused CF. Furthermore, Sheen et al. reported that in the short term, focused written error correction directed at indefinite (first mention) and definite (second mention) article errors resulted in greater accuracy than unfocused correction directed at a range of grammatical errors. These results suggest that unfocused CF may be of limited pedagogical value and that much can be gained from focused CF where grammatical accuracy in L2 writing is concerned.

It should be noted, however, that these empirical studies reviewed above were limited to the impact of CF on two linguistic features (English articles 'a' and 'the'). The conclusion drawn from the studies, therefore, has limited generalizability. With this caveat in mind, however, these studies do suggest that focused corrective feedback can help improve learners' linguistic accuracy in their writing.

A recent study by Sachs and Polio (2007) explored another aspect of written CF. Using introspective methods, they compared the effect of three different types of feedback: (a) direct CF, (b) reformulations, (c) and reformulations involving a think-aloud protocol on the development of L2 writing accuracy. Drawing on Schmidt and Frota's (1986) hypothesis that in order for acquisition to take place, learners need to notice the gap between their interlanguage and the target language, they investigated whether reformulations accompanied by think-aloud protocols would facilitate such noticing and, consequently, lead to higher accuracy in error correction. Fifty-four ESL community college and university students at different proficiency levels participated in the study. The learners wrote a story based on picture prompts. The researchers provided unfocused written CF (except for the control group, which received no feedback at all), and a few days later the learners were asked to revise their original drafts without referring to the feedback they received. The procedure was repeated over the period of 3 weeks. The results show that all experimental groups in the study outperformed the control group, and thus provided support for the positive role of written CF. Comparing the different CF types, the direct CF group outperformed both the reformulation group and the reformulation + think-aloud protocol group, illustrating a statistically significant difference. There was, however, no significant difference between the accuracy of revisions produced by the reformulation group and the reformulation + think-aloud group, which sheds doubt on the value of think-aloud as a means to facilitate acquisition.

It is worth noting that while the reformulations + think-aloud feedback did not prove to be more effective than the other two types of feedback provided to the learners, there was a correlation between the think-aloud scores and the changes the students made in their revisions. As Sachs and Polio (2007) point out, the metalinguistic analysis of the reformulated errors might have facilitated the learners' noticing of the gap between their interlanguage and the target language, as they seemed able to apply what they had verbalized in the think-aloud protocols in their revisions. This observation, however, needs to be viewed with caution as the relationship between the think-aloud protocol and the corrections the learners made in their revisions was not tested for statistical significance.

An entirely different approach to investigating the complexity of L2 writing and the role that CF might play can be found in Storch and Wigglesworth's (2010) qualitative study. This study is noteworthy as it was grounded in sociocultural theory. To the best of my knowledge, this is a first attempt to examine written CF from the perspective of sociocultural theory and therefore provides a useful model for L2 writing researchers wishing to adopt this line of research.

The study used case studies to explore how individual adult ESL learners responded to two different types of written CF (direct CF/reformulations vs. indirect CF/editing symbols), as shown in their subsequent texts. It also examined the relationship between the type of errors the learners made and their uptake and retention of the forms corrected. Storch and Wigglesworth (2010) reported that by and large learners who received direct as opposed to indirect CF showed higher levels of engagement. However, they also found that the learners' engagement and uptake of the two types of feedback were moderated by the nature of the errors the CF targeted. This was clearly evident in the learners' retention of CF (measured by their ability to write a new text after 23 days). For example, CF targeting morphosyntactic and lexical errors, where the learners manifested a high level of engagement with the correction, was mostly retained whereas CF on mechanics was not. Storch and Wigglesworth also showed that affective factors such as learners' beliefs about language use and their goals towards writing improvement influenced not only how they engaged with the different types of CF, but also whether they were willing to accept the feedback and whether they subsequently retained it. However, caution is needed in generalizing from these results as the learners were quite advanced (i.e., graduate students) and the study was conducted in a laboratory setting. Nonetheless, these findings point to the importance of taking into account a host of linguistic and affective factors in examining how learners respond to CF.

While written CF research has produced somewhat inconclusive results, the recent research does provide support for written CF. This appears to be especially the case when the CF approach is of the focused kind. Focused CF may enhance learning by helping learners to (1) *notice* their errors in their written work, (2) engage in hypothesis testing in a systematic way and (3) monitor the accuracy of their writing by tapping into their existing explicit grammatical knowledge. In contrast, unfocused CF runs the risk of (1) providing CF in a confusing, inconsistent and unsystematic way, and (2) overburdening learners.

5.4.2 Evidence Against Written CF

In contrast to the written CF studies reported in the previous section, Truscott and Hsu's (2008) study failed to demonstrate any benefit for CF. They point out that the current literature lacks evidence in favor of written corrective feedback because many studies failed to include a reliable measure of progress. They argued that only the studies that investigate whether students are able to manifest the benefits of written CF in new pieces of writing afford a valid measure of learning. In their study, 47 EFL graduate students were divided into two groups: an indirect unfocused written

CF (a variety of errors underlined) and a control group (no corrective feedback provided) and their performance was analyzed in new pieces of writing. The students wrote a narrative based on a picture story, received CF (except for the control group), and were asked to revise their narrative. One week later, the students were asked to write another picture story. The three writing samples: Narrative #1, Revision, and Narrative #2 were analyzed for the number of errors. The results show that the experimental group outperformed the control group in the revisions and that the difference in accuracy was significant. However, the analysis of Narrative #2 showed that the number of errors made by students in the experimental group and the control group was nearly identical. Truscott and Hsu argued that these findings constituted evidence for the ineffectiveness of written CF because progress made in revisions alone cannot be used as an indication of learning.

Their findings, however, need to be interpreted with caution. First, as Truscott and Hsu acknowledge, the fact that the learners in the experimental group received indirect CF, rather than direct CF, might have had an impact on the results. As shown by the findings of my experimental study, direct CF may produce a stronger effect than indirect CF (see also Bitchener and Knoch, 2009). Some researchers (e.g., Sachs and Polio, 2007) have suggested that the saliency of written CF might play a significant role in facilitating the process of noticing and L2 acquisition. Thus, one can argue that the indirect CF that Truscott and Hsu's experimental group received was not salient enough to bring about a significant change in comparison to the control group. Second, the participants in the study received feedback on a variety of forms and structures, and their progress was analyzed in terms of the overall number of erroneous forms rather than in terms of the gains and losses in the accuracy of specific grammar forms that were targeted by corrective feedback. In other words, they investigated unfocused rather than focused written CF.

Clearly, the debate over whether written CF has a positive effect on the development of students' L2 writing accuracy is not settled. While the early research investigating written CF research produced somewhat inconclusive results, more recent research (including my own study) provides a growing body of evidence in favor of written CF. More specifically, direct CF, focused on one or two error types, seems to be more beneficial than indirect written CF as it not only allows learners to *notice* but also understand the nature of their errors.

5.5 Conclusion

It is likely that the debate concerning the value of written CF will continue. One or two studies showing that focused written CF can lead to acquisition are unlikely to convince the skeptics. There are challenges in designing methodologically robust written CF studies. One problem with the current research on written CF is that the studies differ in terms of research design, and these differences make it difficult to arrive at any consistent conclusions.

As Guénette (2007) points out, the main inconsistencies in the design of the written CF studies include, but are not limited to, the proficiency level of learners,

the measurement of progress e.g., (revisions, new pieces of writing, posttest and delayed posttest), the treatment types, the quantity and the type of corrected errors, the length of study (e.g., short term vs. longitudinal) and the presence or absence of a control group. There is clearly a need for replication studies which systematically investigate these variables to enable us to arrive at more informed conclusions. It is also important to examine whether written CF produces any negative effects on aspects of writing other than linguistic accuracy (e.g., on fluency or complexity).

As noted in Chapters 2 and 4, sociocultural theory emphasizes that CF strategies need to be tailored to the learners' level of development to enable them to construct a Zone of Proximal Development (ZPD). This begs an empirical question: How can the graduated approach to CF that is integral to sociocultural theory best be implemented through written CF, which does not typically involve oral conferencing? Future written CF studies based on SCT should demonstrate specific ways in which the delayed and non-participatory nature of written CF can provide the scaffolding needed to construct a ZPD for learners.

I would argue that there now exists enough evidence in favor of written correction. My own study along with several recent classroom-based studies (all of which have addressed the effects of focused written CF on the linguistic accuracy of English articles) have demonstrated that focused written correction can have a positive effect on acquisition. The evidence from these studies, then, constitutes a challenge to the traditional, unfocused approach to correcting written errors in students' writing. Whereas previous research has shown that such unfocused correction has limited success (and in the opinion of some researchers no success at all), the recent research points to the value of focused written CF. Second language writing teachers need to consider ways in which they can provide *focused* CF to their students by (1) identifying specific grammatical problems that their students have, (2) focusing on one problem at a time, perhaps using metalinguistic CF as this has been shown to most likely produce a positive change and (3) switching the focus of the CF over time so that they can address a wide variety of linguistic problems. Teachers also need to recognize that the benefits of correction on overall accuracy are likely to be cumulative as different points are systematically addressed.

Chapter 6
Comparing Oral and Written Corrective Feedback

6.1 Introduction

Historically, the study of oral corrective feedback and the study of written corrective feedback have been carried out independently of each other. This reflects the differing concerns of SLA and second language writing researchers. Whereas SLA researchers have been largely concerned with whether corrective feedback (CF) has any impact on interlanguage development (e.g., Doughty and Varela, 1998) or on improvement in linguistic accuracy (e.g., Ellis et al., 2006; Lyster, 2004; Sheen, 2007b), second language writing researchers have examined CF in relation to feedback in general (i.e., feedback on organizational and content aspects of writing) and, until recently, have measured this in terms of whether it helps learners to improve their original draft during the revision process (e.g., Ashwell, 2000; Chandler, 2003). In effect, whereas SLA researchers have been primarily concerned with CF in relation to how it affects learning processes and outcomes, such as noticing the changes in linguistic competence, L2 writing researchers have been primarily concerned with how CF can improve writing performance (see Ferris, 2010).

This chapter presents the results of my experimental study, which compared the effects of two oral and two written types of corrective feedback on the acquisition of one linguistic feature by adult intermediate ESL learners. In so doing, this study revisits the data analyzed in the previous chapters with a view to compare the effect of oral and written corrective feedback on L2 acquisition.

6.2 Background

There are a number of ways in which oral and written corrective feedback potentially differ. First, in the case of oral CF, the corrective CF may or may not be noticed depending on the CF strategy. In this respect, oral CF differs from written CF as the latter is more likely to be noticed by the learner as correction, providing of course that they are motivated to attend to the corrections. Second, oral CF typically occurs 'on-line' (i.e., more or less immediately after the learner error has occurred), whereas written CF is inevitably 'offline' (i.e., there is a delay between the learner making the error and receiving the feedback). Third, oral CF is typically directed at

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Table 6.1 The distinctions between oral and written corrective feedback

	Oral corrective feedback	Written corrective feedback
1.	Corrective force may or may not be clear	Corrective force is always clear
2.	Immediate	Delayed
3.	Students mainly function as 'hearers' of the feedback	Students function as 'addressees' of the feedback
4.	Students were publicly exposed to multiple feedback moves, not restricted to his/her own errors	Each student was exposed to only a few feedback moves restricted to his/her own errors individually

individual learners but is available to the rest of the class as 'hearers'. In contrast, written CF is provided to individual learners who function as 'addressees' and is not available to other students (unless they happen to examine the corrections of another student's text). Fourth, the learners who receive oral CF are likely to be exposed to multiple corrections whereas the learners who receive written CF are exposed to only a few corrections. Table 6.1 summarizes these key distinctions between oral and written CF.

Table 6.1 suggests that the medium in which the CF is provided may influence the effects of CF on L2 learning, and yet there have been few studies that have explored the relative efficacy of oral and written CF focusing on the same target feature. Doughty and Varela (1998) addressed both oral and written CF in the form of recasts. However, they did not distinguish the effects of the recasts according to the medium. Thus, their findings do not clarify whether one medium is superior to the other, nor whether the beneficial effect of recasts on learning that they reported could be attributed to oral CF, written CF or both.

Another classroom study relevant to the study to be presented below is the Bitchener et al. (2005) study discussed in Chapter 5. This found that written direct CF coupled with 5-minute individual oral conferences was more effective than written CF alone. Although their finding points to the importance of utilizing both oral and written modes in improving the accuracy of students' writing, they do not provide evidence as to the relative effectiveness of CF in oral and written modes. One can hypothesize that written correction imposes less cognitive load on memory than oral CF, which typically demands a cognitive comparison on-line, requiring learners to heavily rely on their short-term memory. By combining oral and written CF, it might be possible to optimize learners' processing of the feedback, thereby better facilitating L2 learning.

On the other hand, written feedback can be much more complex than oral feedback (as reflected in the current SLA literature). It addresses different aspects of writing – for example, overall quality, grammatical accuracy, syntactic complexity, lexical features, content, mechanics, coherence and discourse features, and fluency (Polio, 2001) – whereas oral CF (as a focus-on-form technique) generally involves drawing attention to linguistic form in learners' erroneous utterances as they arise in communicative activities. These differences in extent and methodology explain

why the written CF literature is so distinct from that of oral CF and why it has been marginalized in the field of SLA (Leki, 2000).

My own study, which is reported in the following section, attempts to demonstrate that oral and written CF can be investigated using the same research design and thereby allows for the effect of the medium of CF on acquisition to be investigated. Inquiry into written CF within the SLA research paradigm can be seen as relevant to L2 writing pedagogy given that one of the aims of such pedagogy is to improve students' written grammatical accuracy. Thus, the perspective I have adopted in this study is to view written CF as a type of form-focused instruction undertaken in a communicative teaching context with relevance to both L2 acquisition and the development of one important aspect of writing proficiency (i.e., grammatical accuracy).

In sum, the aim of my experimental study is to compare the effects of oral and written CF by adopting the methodology that has been used to investigate oral CF. In so doing, the study attempted to bridge the gap between SLA and L2 writing research. The four types of corrective feedback investigated were: (1) oral recasts, (2) oral metalinguistic correction, (3) written direct correction, and (4) written metalingustic correction. The linguistic structure that the corrective feedback focused on was *English articles*, the indefinite article 'a' and the definite article 'the'. It should be noted that the current study builds on my two experimental studies reported in Sections 4.3 and 5.3 which compared two different CF types within the same medium: (1) written direct and written metalinguistic correction and (2) oral recasts and oral metalinguistic correction, respectively. These studies examined the efficacy of oral CF and written CF, respectively. In written CF, both direct correction only and direct metalinguistic CF were found to be effective in improving learners' grammatical accuracy of English articles. In oral CF, however, only metalinguistic correction was shown to be facilitative of such learning; oral recasts had no significant positive effect. As explained in Section 4.3.3, one reason why oral recasts did not produce a positive effect was because they probably failed to induce sufficient learner noticing. Direct written CF resembles oral recasts in that it supplies the learner with the correct form, but differs in that it is much more likely to induce noticing of the error and the correction. After all, there is a permanent record of the correction for the learners to inspect in their own time. To put it another way, direct written CF is more explicit than oral recasts: learners cannot escape its corrective force.

Given these differences between oral CF and written CF, one can speculate that the extent to which CF is effective may be influenced by the medium in which the CF is provided.

6.3 Sheen's Experimental Study

This study sets out to examine whether there is a differential effect on ESL learners' acquisition of English articles for oral corrective feedback and written corrective feedback. The following two questions guided the research:

1. Is there any difference in the effect of oral recasts and direct written correction on the acquisition of English articles?
2. Is there any difference in the effect of oral metalinguistic and written metalinguistic feedback on the acquisition of English articles?

6.3.1 Method

The method of the experimental study reported below is similar to that of the studies reported in Chapters 4 and 5. Readers should refer to the description of the method in those chapters. The participants in this study came from the same research setting described in detail in Section 4.3.1. As in Chapters 4 and 5, I will provide a brief summary of the method of the study. I will also pinpoint a number of differences in the method employed in this study.

6.3.1.1 Participants

The participants were 10 native-speaking American teachers and their 177 students of intermediate proficiency. The students were drawn from both international and immigrant ESL populations and represented various language (11 L1s) and educational backgrounds (e.g., high school diploma to doctoral degree). From this total of 177 students only those with a complete dataset, that is, who completed two posttests (immediate and delayed) were included in the study – a total of 143 participating students. Out of a total of 12 intact classrooms, five broader cluster groups were formed: two oral CF groups (an 'oral recasts group' and an 'oral metalinguistic group'), two written CF groups (a 'written direct correction group' and a 'written metalinguistic group'), and one control group.

6.3.1.2 Operationalizations

In this section I will provide a brief mention of how the four CF types were operationalized in this study. Readers should consult Section 4.3.1 for more detailed explanation as well as for examples of different CF types.

Oral Recasts

Oral recasts are operationalized as a teacher's reformulation of a student's erroneous utterance, without changing the meaning of the student's original utterance, in the context of a communicative activity (Sheen, 2006).

Oral Metalinguistic Feedback

Oral metalinguistic correction is operationalized as a teacher's provision of the correct form following an error, together with metalinguistic information. Thus, in the metalinguistic group, linguistic information was given along with the correct form.

Written Direct Correction

Written direct correction constitutes a traditional error correction strategy which includes: (1) indicating the location of an error on the student's written text, and (2) providing the correct form by deleting and/or replacing the error or by adding a linguistic element.

Written Metalinguistic Correction

Written metalinguistic correction is operationalized as the provision of metalinguistic explanation to justify the correct form when an error is made. In this study, the correct form along with metalinguistic information was provided (see Fig. 5.1).

6.3.1.3 Design

As reported in Sections 4.3 and 4.4, this study employed a quasi-experimental design with a pretest-treatment-posttest-delayed posttest design, using intact ESL classes. There were four experimental CF groups and one control group. Figure 6.1

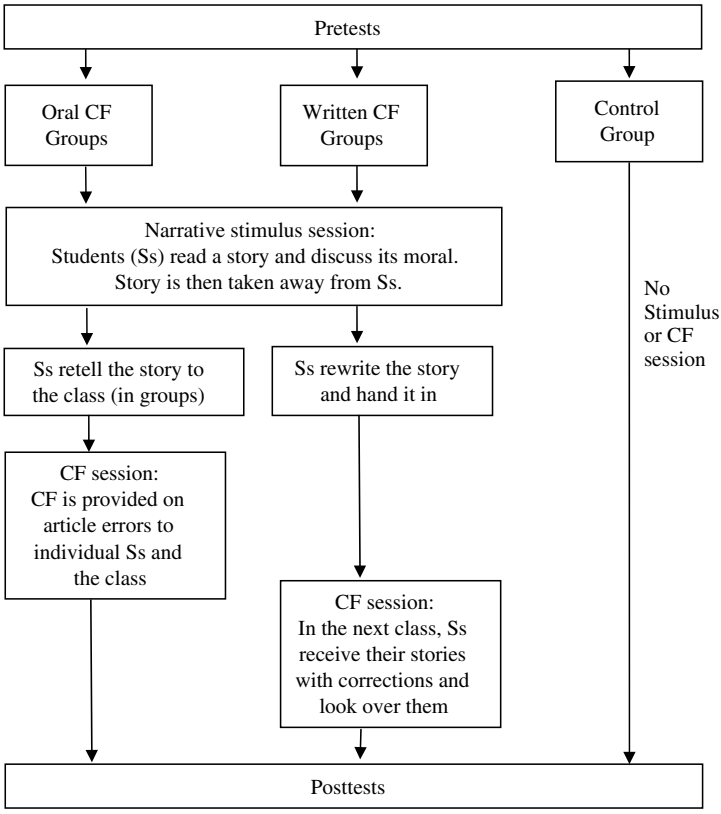


Fig. 6.1 Design of oral and written CF treatments

summarizes the treatments for the different groups in order to provide a clear picture of what oral and written CF groups, as well as the control group, received during each treatment session.

6.3.1.4 Target Linguistic Structures

As in the studies reported in Chapters 4 and 5, the English indefinite article 'a' as an anaphoric reference and the definite article 'the' as a second mention were the target linguistic feature. In other words, the learners received oral or written CF on their errors involving these two major functions of English articles.

6.3.1.5 Corrective Feedback Treatment

For the detailed description of the two narrative tasks, oral and written CF treatment procedures and three testing instruments (speeded dictation test, writing test and error correction test) as well as the exit questionnaire, readers should refer to Sections 4.3.1 and 5.3.1, as well as Appendices 1 through 3 in Chapter 6. Below is a brief summary of the oral and written CF treatment procedures described in these sections.

There were two treatment sessions involving a narrative stimulus for the purpose of eliciting article errors from the learners. The oral corrective feedback treatment took place over a period of 2 weeks. For each of the two treatment sessions, a 30-min narrative task was used to elicit article errors from the learners. In the case of the oral CF treatment, the narrative task involved the students retelling a story to the entire class. When a learner made an error in article usage, the teacher corrected the error using recasts (in the oral recast group) or correction + metalinguistic explanation (in the oral metalinguistic group). The written CF treatment involved the same story tasks that were used in the oral treatment sessions, but students were asked to reproduce the story in writing, and subsequently (in the next class) were given written CF that provided the correct form either with metalinguistic feedback (in the written metalinguistic group) or without (in the written direct group).

6.3.1.6 Data Analysis

All scores were entered into SPSS 11.5 (Statistical Package for the Social Sciences). As in my other studies the results will be reported using total test scores only derived by averaging the scores for the three individual tests: speeded dictation test, writing test and error correction test. The Cronbach alpha for the pretest total scores was 0.85. In order to investigate the differential effects of the oral and written CF, one-way ANOVAs for the composite scores were computed, followed by two-way repeated measures ANOVAs, and Tukey post-hoc comparison tests.

6.3.1.7 Test Reliability

Test reliability was measured in the same way as in the studies reported in Chapters 4 and 5. In all cases, the tests demonstrated an acceptable level of reliability.

6.3.2 Results

6.3.2.1 Comparisons of Oral Recasts, Written Direct and Control Groups

This section reports the results for research question (1), which concerned the relative effectiveness of oral recasts and written direct correction. Table 6.2 displays the descriptive statistics for total test scores over the three testing periods (i.e., pretest, posttest 1, and posttest 2) for the oral recasts, written direct CF, and the control group.

Figure 6.2 provides a visual representation of the total test scores for the three testing periods for the three groups under analysis.

To establish whether the differences in the groups' scores on the pretest were statistically significant, a one-way ANOVA was performed. This showed no statistically significant group differences, $F(2, 82) = 0.71$, ns.

Table 6.2 Group means and standard deviations for total test scores

	Pretest		Posttest 1		Posttest 2	
	M	*SD*	*M*	*SD*	*M*	*SD*
Oral recast group ($n = 26$)	46.3	15.0	52.6	15.5	54.0	16.4
Written direct group ($n = 31$)	44.1	11.9	58.3	15.3	57.5	14.4
Control group ($n = 28$)	48.3	14.2	52.1	15.6	51.2	16.2

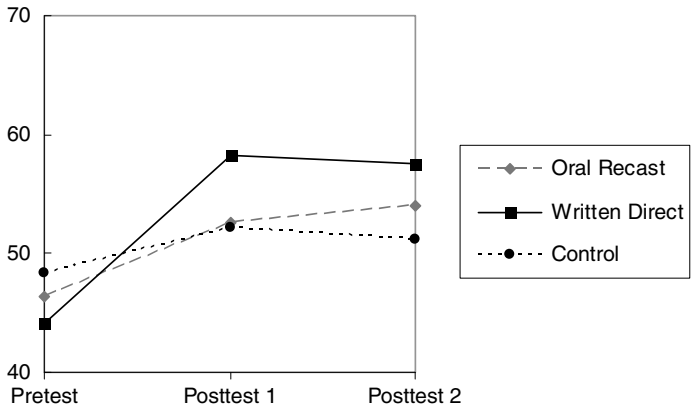


Fig. 6.2 Mean total test scores versus time

Table 6.3 Repeated measures ANOVA comparing the oral recasts, written direct and control groups in three testing periods

Source	*df*	*F*	*p*
Between students			
Corrective feedback treatment (CFT)	2	0.33	0.25
Error	82	(606.7)	
Within students			
Time	1.85	60.7	< 0.01
Time × CFT	4	9.64	< 0.01
Error	164	(30.28)	

As previously reported, a one-way repeated measures ANOVA indicated that the control group manifested significant gains from pretest to posttest 1 $F(1, 27) = 9.57$, $p = < 0.01$ and from pretest to posttest 2, $F(1, 27) = 4.93$, $p = < 0.05$. The score differences from posttest 1 to posttest 2 were not significant.

In order to examine if the group differences over time were statistically significant, a two-way repeated measures ANOVA was performed with total scores as a dependent variable and with Time (pretest, posttest 1, and posttest 2) and Corrective Feedback Treatment (oral recasts and written direct CF) as independent variables. Table 6.3 shows the results of the analysis.

As can be seen in Table 6.3, there was a significant Time × Treatment interaction, indicating that the groups performed differently from each other over time. One way ANOVAs revealed significant between-group differences in both posttest 1, $F(2, 82) = 2.03$, $p = < 0.05$ and posttest 2, $F(2, 82) = 2.89$, $p = < 0.05$.

Tukey's post-hoc pairwise comparisons were computed to isolate where the significant differences lie among the groups (with an alpha level of 0.05). These analyses revealed that in both posttest 1 and posttest 2, the written direct group performed better than either the oral recast group or the control group on total test scores. However, there was no significant difference between the recast and the control group in posttest 1 or posttest 2. The statistically significant differences that emerged from this analysis are summarized in Table 6.4.

6.3.2.2 Comparisons Between Oral Metalinguistic, Written Metalinguistic and Control Groups

This section reports the results for research question (a), which concerned the relative effectiveness of oral metalinguistic and written metalinguistic correction.

Table 6.4 Summary of statistically significant group differences

	Total test scores
Posttest1	Written direct > Control*
	Written direct > Oral recasts*
Posttest2	Written direct > Control*
	Written direct > Oral recasts*

*$p < 0.05$.

Table 6.5 Group means and standard deviations for total test scores

	Pretest		Posttest 1		Posttest 2	
	M	*SD*	*M*	*SD*	*M*	*SD*
Oral meta group ($n = 26$)	50.4	14.0	61.4	15.0	63.4	16.9
Written meta group ($n = 32$)	49.6	16.9	65.4	16.3	69.4	15.3
Control group ($n = 28$)	48.3	14.2	52.1	15.6	51.2	16.2

Meta = metalinguistic CF.

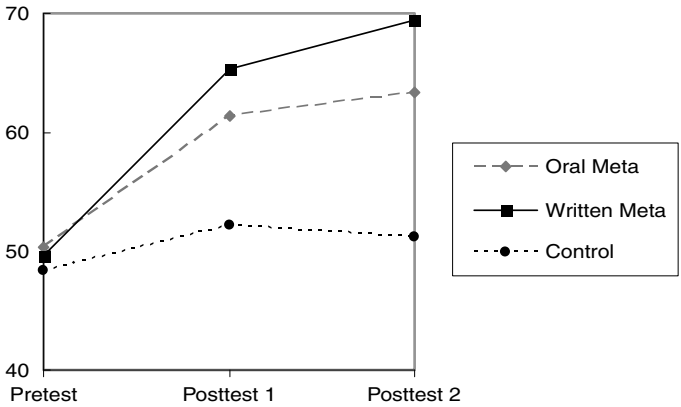


Fig. 6.3 Mean total test scores versus time

Table 6.5 presents the descriptive statistics for total scores for the oral metalinguistic and written metalinguistic groups and the control group.

Figure 6.3 provides a visual representation of the mean total test scores for the three testing periods for the oral recasts and written direct groups and the control group.

A one-way ANOVA revealed that there were no significant differences among these three groups' scores on the pretest, $F(2, 83) = 1.07$, ns. Also, as reported in Chapters 4 and 5, the oral metalinguistic, written metalinguistic and control groups manifested significant gains from pretest to posttest 1 as well as from pretest to posttest 2. The crucial analysis, therefore, concerns whether there was a Time × Treatment interaction. As shown in Table 6.6, the two-way repeated measures ANOVA revealed that there was a significant Time × Treatment interaction. This means that the groups performed differently from each other over time and according to the CF treatment. One-way ANOVAs revealed that there were significant group differences in both posttest 1, $F(2, 83) = 3.97$, $p = < 0.05$ and posttest 2, $F(2, 83) = 5.53$, $p = < 01$.

To examine whether there were significant differences between the oral metalinguistic and written metalinguistic CF groups, post-hoc tests were performed (with an alpha level of 0.05). These comparisons indicated that in both posttest

Table 6.6 Repeated measures ANOVA comparing the oral metalinguistic, written metalinguistic and control groups over the three testing periods

Source	*df*	*F*	*p*
Between students			
Corrective feedback treatment (CFT)	2	4.25	0.01
Error	83	(654.6)	
Within students			
Time	1.71	87.5	< 0.01
Time × CFT	3.43	14.1	< 0.01
Error	142.2	(47.2)	

Table 6.7 Summary of statistically significant group differences

	Total test scores
Posttest1	Oral metalinguistic, written metalinguistic > Control*
Posttest2	Oral metalinguistic, written metalinguistic > Control*

*$p < 0.05$.

1 and posttest 2, the oral metalinguistic group as well as the written metalinguistic group performed better than the control group. Also, in the delayed posttest (i.e., posttest 2), both the treatment groups were superior to the control group. However, there was no significant difference between the oral metalinguistic and written metalinguistic group. Table 6.7 summarizes the statistically significant differences revealed by the post-hoc pairwise comparisons.

6.3.2.3 Exit Questionnaire

As presented in Tables 4.8 and 5.6, the exit questionnaire results showed that among the five groups (four CF treatment groups and one control group), the learners' awareness of the focus of the corrective feedback on grammar (and more specifically on articles) was highest in the written metalinguistic group and lowest in the oral recasts group. The previously reported Pearson's Chi-Square (χ^2) tests showed that the group differences were significant ($p < 0.05$). The rank order of awareness level for the four treatment groups is as follows: (1) written metalinguistic 52%; (2) oral metalinguistic 35%; (3) written direct 25%; and (4) oral recasts 0%. Overall, metalinguistic CF in both oral and written modes produced higher levels of learner awareness of the focus on grammar and on English articles in particular.

6.3.3 Discussion

This section discusses the results of the two research questions: (1) Is there any difference in the effect of oral recasts and direct written correction on the acquisition

of English articles? and (2) Is there any difference in the effect of oral metalinguistic and written metalinguistic feedback on the acquisition of English articles?

6.3.3.1 The Differential Effects of Oral Recasts and Written Direct Correction

The results presented in the preceding section show that written direct correction was superior to oral recasts in helping learners improve their grammatical accuracy of English articles. This is not surprising and was to be expected given the results reported previously in Sections 4.3.2 and 5.3.2, which showed that the oral recasts did not affect learning whereas there was an effect for written direct correction in both the short and long term.

These two CF types, oral recasts and written direct CF, differed in terms of the medium in which CF was provided to the learners. Although the oral recasts and written direct correction investigated in my study were considered an equivalent form of CF in that they both provided learners with the correct forms, as in Doughty and Varela (1998), the results show that they were not equivalent and that written direct CF and oral recasts function differently.

The most obvious reason for this is that the students failed to notice the corrective force of the oral recasts whereas they did recognize that the written direct feedback was corrective. This is in line with the common argument that oral recasts are implicit because there is no overt linguistic signal that indicates that an error has been committed. In contrast, written direct CF is explicit in nature; that is, its corrective function is clear to learners. Written CF can be direct (i.e., the correct form is given as in the current study) or indirect (i.e., only clues as to how to correct the non-target form are provided). However, in both cases learners are likely to become aware that an error has been committed whereas oral recasts often fail to induce learner noticing, as noted by a number of researchers (e.g., Lyster and Ranta, 1997; Mackey et al., 2000). The results of the exit questionnaire demonstrate that this was the case in this study (see Tables 4.8 and 5.6).

It would be interesting to compare written direct feedback with oral explicit correction, which is effective in promoting learning (and even more effective than oral recasts), as studies such as Carroll and Swain (1993) have shown. It can be hypothesized that no differences in the effect of these two explicit types of CF would be found, despite the difference in medium.

6.3.3.2 The Differential Effects of Oral Metalinguistic vs. Written Metalinguistic Correction

According to Ellis's (2006) categorization of CF, both oral metalinguistic and written CF are examples of an explicit and input-providing feedback strategy. As noted previously, the metalinguistic feedback employed in the current study is different from that investigated in other CF studies (e.g., Ellis et al., 2001; Lyster, 2004; Lyster and Ranta, 1997) in that it provided both the correct form and metalinguistic information. That is, it was direct/input-providing rather than indirect/output-prompting.

Thus, in contrast to the difference between oral recasts and written direct correction, the only thing that distinguished oral metalinguistic and written metalinguistic CF was the medium of the feedback. Thus, the comparison of these two types allows us to examine whether and to what extent the medium of CF influences the effectiveness of CF.

Although the oral and written metalinguistic feedback did differ with regard to points 2, 3 and 4 in Table 6.1, it would appear that these differences were not sufficiently influential, as there was no significant difference between the oral and written metalinguistic groups. Recall that the medium of the feedback was an issue where oral recasts and written direct feedback were compared. The reason given for this was that the learners were not aware that they were being corrected in the case of oral recasts (the only implicit CF strategy investigated in this study) while they were aware in the case of written direct feedback. Thus, what these results overall suggest is that the crucial factor influencing the effectiveness of CF is the explicitness of the feedback (i.e., Point 1 in Table 6.1). It would seem to be the case that where article errors of the kind investigated in this study are concerned, learners simply do not benefit from implicit CF, such as that provided by oral recasts.

6.3.4 Summary and Concluding Comments

The results reported in the preceding sections suggest that it is not so much the medium of the CF as the degree of its explicitness that is important. The demonstrated advantage of written direct CF over oral recasts is explained by Carroll's (2001) autonomous induction theory, according to which, corrective feedback, in order to be effective, must draw learners' attention to the errors that they have committed. It can be argued that oral recasts in the context of a communicative task examined in my study failed to play this role and thereby did not promote acquisition, whereas the oral metalinguistic, written direct, and written metalinguistic CF did.

However, it should be noted that all of the types of CF investigated in this study were input-providing feedback, and thus, unlike prompts, they did not 'push' learners to modify their output, which Swain (1995) among others has hypothesized promotes learning. Thus, all that can be said on the basis of the results reported in this chapter is that input-providing CF that causes learners to attend to their errors and their correction is more effective than CF that simply provides learners with the correct form. It remains a possibility that other types of CF leading to pushed output (including, in the case of writing, the opportunity for revision) will be even more effective, although, fairly obviously this is only possible if learners possess partially internalized knowledge of the target feature, as was the case with the target structure (i.e., articles) in this study.

A further possible limitation of the results reported in this chapter is that they do not demonstrate that the explicit types of CF had any effect on learners' implicit

knowledge, as the tests used in the study did not clearly distinguish between explicit and implicit knowledge. Nevertheless, there are grounds for arguing that even if the knowledge imparted by the feedback was of the explicit kind, this would be of value to learners, as explicit knowledge can assist the subsequent development of implicit knowledge (Ellis, 1994; 2005). Also, although there is no basis to claim that explicit feedback resulted in implicit knowledge, there is also no basis for claiming that it did not.

6.4 Conclusion

As stated in the introductory chapter, research into oral and written CF has followed different traditions; the former has been largely grounded in cognitive-interactionist SLA theories while the latter draws on L1 and L2 writing composition theories. These differences notwithstanding, there are several issues common to the study of oral and written CF: (a) whether oral and written CF works; (b) what constitutes the most effective approach for implementing CF; and (c) whether it is possible to develop a common methodology for investigating the effectiveness of oral and written CF.

My experimental study reported above was based on the assumption that there is merit in examining oral and written CF together and explored the aforementioned issues. Ferris (2010), in her insightful think-piece, emphasizes the different agendas of SLA and second language writing researchers while exploring the potential connections between oral and written CF research. She proposes that total convergence in the approach for investigating CF in the two media may not be possible or even desirable. However, I would argue that the differences are more a matter of tradition than of necessity and that it is possible to devise a common methodology for examining oral and written CF. To date, few studies have been carried out that systematically compare different types of CF across the two media (i.e., oral and written). By investigating this, researchers can contribute not only to a better understanding of the role that CF plays in second language learning but also can bridge the gap between SLA and L2 writing research. It is hoped that the experimental study reported in Section 6.3 will stimulate further research.

Given the importance of CF that both teachers and students place in the language classroom, some pedagogical implications can be drawn. The findings of my experimental study show that the recasts provided by a teacher may not assist acquisition when learners fail to recognize the corrective force of the recasts. Kim and Han (2007) reported that mismatch rarely occurred between the corrective intent of recasts provided by the two teachers and the interpretations of such recasts by the students in the Korean EFL classroom context in their study. However, their findings also suggest that when these learners interpreted recasts as a response to content rather than correction, they were much less likely to notice the gap between their errors and the corrected forms. To illustrate this difference, consider Examples 6.1

and 6.2 taken from Kim and Han (p. 294). The learner in Example 6.1 reported noticing of the recast (as also reflected in learner uptake) whereas the learner in Example 6.2 did not and failed to uptake the correction.

Example 6.1
S: We was very curious.
T: We were very curious.
S: We were very curious.

Example 6.2
S: It's not my tasty.
T: It's not your taste?
S: Yes.

The obvious conclusion is that language teachers need to be sure that the learners become aware of the corrective force of recasts.

Sheen's (2006) taxonomy of recasts, discussed in Section 4.2.2, can serve as a reference to help teachers make recasts more explicit in a communicative context. For example, they can use declarative recasts (as shown in Example 6.1) rather than interrogative recasts (as in Example 6.2), which typically serve as confirmation checks. On the other hand, teachers should be aware of the advantage of metalinguistic CF and should not be afraid of using this kind of CF strategy as a brief didactic moment during communicative activities if the rule can be explained clearly and simply. In the case of written CF, it is also important that teachers ensure that learners pay attention to the corrections they receive.

Overall, explicit feedback in both oral and written form (especially when consisting of the correct form and metalinguistic information) appears to work best for acquisition because it is more likely to ensure that the corrections are attended to. I would argue, then, that teachers should not be afraid to provide explicit correction. This recommendation, however, conflicts with the view of CF derived from sociocultural theory (SCT). As discussed in Sections 2.4 and 4.6.1, the proponents of SCT argue that teachers should tailor the type of CF to suit the learners' developmental level. What is needed is a study that compares the relative effects of providing explicit CF and tailoring CF to individual learner needs. Until there is such a study, I would prefer to continue to recommend explicit CF on the grounds that it would appear to work for learners in general and because I have difficulty in seeing how, in the case of written CF, teachers can be expected to tailor CF to different learners' developmental level when there is no opportunity to interact with the learners. In many contexts teachers have to deal with large groups of learners and will have limited opportunity to interact with individual students; they need to know what will work best for them.

I do not want to suggest, however, that teachers do not need to know more about how individual learner factors impact the effect that CF can have on learning. Learners do differ in their ability and preparedness to benefit from CF. It remains a possibility, for example, that individual difference (ID) factors such as language

aptitude and anxiety mediate the effects of different kinds of CF. It will be useful for teachers to know how such factors influence learners' ability to process CF not with a view to trying to match CF type to learner, which is not practical in most teaching situations, but with a view to mitigate the limitations of the different types of CF to ensure that they benefit learners in general. The next chapter will examine how learner ID factors mediated the effects of the different types of CF.

Chapter 7
Individual Differences and Corrective Feedback

7.1 Introduction

As discussed in the previous chapters, corrective feedback research has produced mixed results with regard to the effectiveness of teachers' error correction. One reason may be that individual difference (ID) variables – such as language aptitude, anxiety, and attitudes towards corrective feedback – influence learners' receptivity to error correction and thus the effectiveness of the feedback.

Learners can vary enormously with regard to such cognitive factors as language aptitude, intelligence, and learning strategies, as well as affective factors such as language anxiety, attitudes, and motivation. These ID variables are hypothesized to affect language learning processes and outcomes (Dörnyei, 2005; Gardner and MacIntyre, 1992, 1993). However, to date, research on individual learner differences has focused primarily on the relationship between ID factors and achievement or proficiency, and very few studies have systematically examined the extent to which these factors influence the *processes* involved in L2 acquisition. In particular, there is a need for studies that examine how ID factors influence the ways in which learners process language instruction. One way in which this can be undertaken is through an investigation of how the effects of corrective feedback on language acquisition are mediated by cognitive and affective factors.

To date, there have been only two studies that have examined the effects of teachers' CF in relation to these individual difference factors. DeKeyser (1993) investigated the effects of CF in relation to individual differences in language proficiency, grammatical sensitivity, extrinsic motivation, and anxiety. His findings revealed that there was no significant main effect for CF. Instead, there were interaction effects involving some of these individual differences, indicating that CF benefited some students with certain characteristics. Namely, students with high previous achievement, high language aptitude, and low anxiety benefited the most from error correction. Similarly, Havranek and Cesnik (2001) reported that corrective feedback was likely to benefit learners who had a positive attitude towards error correction and high language ability.

These two studies, however, did not isolate different types of CF, nor did they investigate the interrelated effects of individual variables on specific

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linguistic structures. Given the complex nature of CF (e.g., implicit/explicit, input-providing/output-prompting), it is quite possible that different types of CF are mediated differentially by different individual factors.

In this chapter, I will examine three individual learner factors: one cognitive factor-language aptitude, and two affective factors-language anxiety and learner attitudes towards error correction. These three variables have been chosen because they have been found to play an important role in influencing instructed SLA and also because they can be easily and appropriately operationalized in the context of my experimental classroom study to be reported in Section 7.3.

7.2 Background

In this section I will briefly introduce the three individual difference factors that figured in the study I will report. I will provide a definition of each factor and then consider how it might influence the way that learners process CF, drawing on relevant research where appropriate. My aim, however, is not to provide a comprehensive account of the research that has investigated these factors (see Dörnyei, 2005 for such an account).

7.2.1 Language Aptitude and Second Language Acquisition

Language aptitude has long been considered the principal factor responsible for the success of language learning (Ellis, 2004). Aptitude is a complex construct, distinct from general intelligence; that is, 'the complex of general intelligence and the complex of language aptitude share definite commonalities but do not coincide completely' (Dörnyei, 2005, p. 47). Then, what exactly does an aptitude for language entail?

It is generally seen as comprising a number of separate abilities. Skehan (1998), drawing on previous research by Carroll (1973, 1981) and Pimsleur (1966, 1968), distinguished three abilities:

1. 'Auditory ability' deals with the auditory aspects of language learning involving not only an ability to discriminate sounds but also to retain the sounds for deeper processing and analysis;
2. 'language analytic ability' is 'the capacity to infer rules of language and make linguistic generalizations or extrapolations' (Sawyer and Ranta, 2001); and
3. 'rote learning ability' involves memory – the capacity to 'make associations between L1 lexis and target language items' (Skehan, 2001, p. 71).

Of these the first two seem potentially relevant to how learners process oral CF while the second (2) seems relevant to how they process written CF. In the study I will report later in this chapter, I focus only on (2).

Early studies of language aptitude were correlational in nature (i.e., they investigated the relationship between language aptitude and language proficiency). However, recent research has adopted a more SLA-oriented approach. Robinson (2001, 2002) began a new line of research on aptitude-treatment interactions in relation to SLA processes. Also, Skehan (1998, 2002) theorized how different language aptitude components corresponded to different SLA processing stages.

Robinson (2001, 2002, 2007) revived Snow's (1987) notion of 'aptitude complexes'. He outlined a map of different aptitude complexes relating to the cognitive processes he hypothesized to be involved in different learning conditions/situations such as incidental, implicit or explicit learning. More specifically, Robinson (2002) mapped out a hierarchical structure of language aptitude abilities relevant to learning processes. For example, he theorized and formulated four complexes: (1) aptitude for focus-on-form (via recasts); (2) aptitude for incidental learning (via oral content); (3) aptitude for incidental learning (via written content); and (4) aptitude for explicit rule learning. He attempted to relate these different aptitudes to different aspects of language processing. For example, 'noticing the gap' is hypothesized to involve speed of perception and pattern recognition; 'memory for contingent speech' involves phonological working memory capacity and speed of phonological working memory; 'deep semantic processing' involves the capacity to form analogies and infer word meanings; 'memory for contingent text' involves working memory for text and speed of phonological working memory; and 'metalinguistic rule rehearsal' involves grammatical sensitivity and rote memory.

Robinson (2002) acknowledges that matching processes and abilities in this way is problematic and difficult to apply in actual studies of L2. He argues, however, that the study of these complexes has the potential to make a contribution not only towards explaining cognitive processes of L2 acquisition but also towards informing different pedagogical strategies, including 'focus-on-form' which encompasses CF. He notes:

> this complex [i.e., focus-on-form] may be particularly relevant to distinguishing between learners who benefit from implicit negative feedback provided by targeted recasts during oral interaction versus those who do not, helping, in part, to explain conflicting findings for short term uptake, and the long term developmental change hypothesized to result from it (p. 118).

It is this approach – examining language aptitude in relation to specific teaching and learning activities – that informs the study I will report later.

Another new direction can be found in Skehan's (1998, 2002) work on aptitude. He theorized ways in which specific aptitude components could fit into a model of L2 acquisition and proposed a theoretical relationship between stages in L2 acquisition and the aptitude constructs shown in Table 7.1.

To illustrate Skehan's model, let us again consider *noticing* (Schmidt, 1990, 1994), since this notion is considered of crucial importance for CF to be effective. As Dörnyei and Skehan (2003) point out, if the individual learners' abilities to notice linguistic input vary, then learners with a greater noticing ability will respond to saliency and frequency in input they will also segment the input stream more

Table 7.1 SLA stages and aptitude constructs. Taken from Dörnyei and Skehan, 2003, p. 597

SLA stages	Corresponding aptitude constructs
Input processing strategies, such as segmentation	Attentional control
	Working memory
Noticing	Phonemic coding ability
	Working memory
Pattern identification	Phonemic coding ability
	Working memory
	Grammatical sensitivity
	Inductive language learning ability
Pattern restructuring and manipulation	Grammatical sensitivity
	Inductive language learning ability
Pattern control	*Automatization*
	Integrative memory
Pattern integration	*Chunking*
	Retrieval memory

Note: Existing foreign language aptitude constructs shown in normal text whereas potential aptitude constructs are in italics.

efficiently than learners with weaker abilities. These differing degrees in noticing are likely to involve 'phonemic coding ability' (the capacity to discriminate and code unfamiliar sounds that are retained for more than a few seconds) and 'working memory'. Once learners go through the stage of noticing (or not noticing) the input they are exposed to, the next stage – 'pattern identification' – kicks in. This is where learners may have to deal with language structures. In this stage, while phonemic coding ability and working memory are still at work, language analytic ability is likely to be important. As Dörnyei and Skehan (2003) explain:

> The presumption is that, given exactly the same input/intake data, there will be differences in pattern-extraction capacities, that is, some people are able to analyse material and make generalizations based on it better than others. Such learners will also then benefit from the greater degree of structuring of the input material into the form of rules (correct or not), and retain material more effectively (p. 599).

This account of how aptitude can be linked to L2 processing provides a basis for explaining the role that language aptitude might play in corrective feedback. As such, it was also instrumental in shaping the design of my study.

My study focuses on just one aspect of language aptitude – language analytic-ability. One study that investigated this aspect was Ranta (2002). She found that language analytic ability was related to measures of learning in immersion learners, strongly suggesting that this aspect of aptitude influences the kind of implicit learning that occurs in communicative classrooms. Citing Van Kleeck (1982), she notes that whereas language analytic ability is considered a stable *trait*, metalinguistic skills are viewed as a developmental *skill* which can be trained over time. However, these two constructs are intricately related to each other in that learners' language analytic ability is likely to influence the extent to which learners are successful in

developing metalinguistic skills. This observation suggests that learners' ability to make effective use of CF involving metalinguistic explanation may depend on their language analytic ability.

Another study of relevance to my own research was Mackey et al. (2002). This explored the relationship between one aspect of language aptitude (working memory), noticing and L2 development. This was a laboratory study in which 10 dyads of English native speakers (NS) and ESL learners (NNS) engaged in task-based interactions during which they received recasts on their errors involving question forms (e.g., NNS: What are there another thing? NS who provided a recast: ah, what other things are there?). Their working memory (WM), i.e., verbal WM and phonological short term memory (STM), was measured by listening span tests as well as a recall test which consisted of a list of 16 pairs of non-words. The learners were asked to give their retrospective thoughts almost immediately after they had completed the communicative task, as the researcher prompted responses by replaying videotaped clips that captured the learner's interactional move during the task (see Gass and Mackey, 2000 for detailed methodology). L2 development (as shown in the analysis of immediate and delayed posttests) was measured by the learners' progress through the developmental stages for English question formations (see Pienemann and Johnston, 1987). Mackey et al. (2002) reported that (1) WM scores were positively (although not significantly) related to learner noticing, and that while there was no significant relationship between the learners' WM scores, noticing and developmental levels (of English question formation), learners who were at a low developmental level were found to notice recasts less frequently than learners who were at higher developmental levels. Also, learners with low WM tended to show developmental progress in English question formation in the immediate posttests whereas high WM learners showed more progress in delayed-posttests. These findings, albeit somewhat mixed, do suggest that WM may play a significant role in developing interlanguage, as it can constrain learners' capacity to notice the CF that occurs in oral interaction. This issue will be revisted in Section 7.4 where subsequent experimental research is considered.

The experimental design employed by my own study differs from that of Mackey et al. (2002) as I chose to investigate another aspect of language aptitude – language analytic ability – and also as I investigated learners in intact classrooms.

7.2.2 Learner Anxiety and Second Language Acquisition

Whereas language aptitude is the key *cognitive* factor responsible for L2 achievement, learner anxiety is one of the most important *affective* factors influencing the success of language learning (Horwitz, 2001). Individual difference (ID) researchers distinguish three types of anxiety: (1) trait anxiety, (2) state anxiety, and (3) situational anxiety. Dörnyei (2005) defines (1) and (2) as follows: 'Trait anxiety refers to a stable predisposition to become anxious in a cross-section of situations; state anxiety is the transient, moment-to-moment experience of anxiety as an emotional

reaction to the current situation' (p. 198). It has been argued that in contrast to trait or state anxiety, anxiety for learning a foreign language is of a specific kind, aroused by situational factors such as tests, speaking in front of class, and being called on by the teacher (Horwitz, 1986; MacIntyre and Gardner, 1989, 1991). MacIntyre (1999, p. 5) defines this specific kind of anxiety (i.e., 'language anxiety') as follows:

> the apprehension experienced when a situation requires the use of a second language with which the individual is not fully proficient . . .the propensity for an individual to react in a nervous manner when speaking, listening, reading, or writing in the second language.

In the 1970s and 1980s, language anxiety was examined by studying learner diaries (e.g., Bailey, 1983). Later research made use of specially designed questionnaires, including one of the most influential and established questionnaires by Horwitz et al. (1986), the 'Foreign Language Classroom Anxiety Scale (FLCAS)'. Questionnaire studies have found a significant negative relationship between anxiety and various L2 achievement measures, such as final grades and oral proficiency tests (Horwitz and Young, 1991). Nevertheless, there is disagreement about the role played by language anxiety in learning. Language anxiety has been claimed to have a facilitating effect, a debilitating effect and no effect at all on learners' performance and L2 achievement (Dörnyei, 2005).

Horwitz (2001) and her co-researchers have consistently argued that anxiety is debilitative: that is, she argues it contributes directly to learners' poor linguistic performance. Debilitative anxiety can be triggered by a wide range of sources: for example, a lack of self-confidence/self-esteem, demanding tasks involving oral production, and unfriendly lockstep teaching environments (Cheng et al., 1999; Horwitz, 1987, 2000; Horwitz et al., 1986). Krashen (1982, 1985) also viewed anxiety as debilitative. His position is of special interest because he is one of the few researchers to have considered anxiety in relation to corrective feedback. He argued that corrective feedback is potentially harmful for learners because it is likely to increase their level of anxiety and thereby raise their affective filters, in turn inhibiting the learner's ability to process input and thereby limiting their ability to acquire the L2. Krashen (1998) noted that the most anxiety-provoking classroom activity for learners is speaking/talking in front of the class and argued that 'pushed output' (i.e., encouraging learners to produce the target language correctly) inhibits acquisition because it arouses anxiety in the learner and thus raises the affective filter. The 'no effect' position has been advanced by Sparks and Ganschow (1991). According to their Linguistic Coding Deficit Hypothesis (LCDH), anxiety does not affect learners' success in learning a foreign language because L2 achievement is dependent solely on the learner's aptitude and underlying cognitive abilities. They argued that students' anxiety is not a primary causative variable but rather is *caused* by learners' first language disabilities and cognitive deficiencies, which impede their capacity to process input and produce output in the classroom. According to this position, therefore, an affective variable like language anxiety does not directly influence language learning.

Finally, some researchers have argued that anxiety can facilitate language learning. Early research demonstrated that anxiety results in higher motivation and more

effort, and hence better learning outcomes (Kleinmann, 1978; Chastain, 1975, cited in Ellis, 1994). In a recent study utilizing an ethnographic design, Spielmann and Radnofsky (2001) examined the anxiety of adult learners of French in an intensive summer program. They found that students experienced two kinds of tension (i.e., euphoric and dysphoric) as they encountered different learning situations. The euphoric tension was viewed as challenging but manageable and therefore benefited learners, whereas disagreeable and unacceptable tensions (dysphoric) inhibited learning. This study provides insights into how certain kinds of language anxiety can lead to a positive learning experience. As such, it contrasts with the general view, which treats anxiety as a fear or phobia that negatively affects learners' performance.

Irrespective of the different positions regarding the effect of language anxiety on learning, little is known about the relationship between language anxiety and the learning processes that account for L2 acquisition. A study by MacIntyre and Gardner (1994) is pioneering in this respect. They demonstrated that learner anxiety negatively affected both the ability to perform a language learning task and ultimate L2 achievement. Using a video camera to arouse learners' language anxiety, they compared learners' performances on a computer-based vocabulary learning task. Their findings showed that the learners' exposure to the video camera resulted in heightened state anxiety with subsequent poor performance in vocabulary learning. MacIntyre and Gardner's (1994) study is particularly relevant to the study reported in this chapter as it attempted to relate anxiety to a processing model of language acquisition instead of simply examining the relationship between anxiety and achievement.

To sum up, most SLA researchers recognize that foreign language anxiety (as a highly specific kind of situational anxiety) constitutes an important ID variable that is related causally to various L2 criterion measures. However, some researchers view foreign language anxiety as the result rather than the cause of poor language learning while still others consider that anxiety can have a facilitating as well as debilitating effect.

There is now a substantial body of research exploring the role of anxiety in language learning. This research has examined both second language classroom anxiety and second language writing anxiety (see Cheng et al., 1999). Nonetheless, studies to date (with the exception of MacIntyre and Gardner, 1994) have not examined how language anxiety affects learners' ability to develop L2 knowledge during a language learning task. There have also been no studies that have examined anxiety in relation to the different micro-processes of language learning (e.g., learners' attention to form as a result of corrective feedback).

The experimental study to be reported in this chapter attempts to fill this gap by examining learners' language anxiety in a specific instructional context where corrective feedback (CF) is provided on the errors that learners make in a speaking and a writing task. If learner anxiety differs according to the mode of communication (Burgoon and Hale, 1983), it is plausible that the anxiety that learners experience as a result of corrective feedback will vary according to whether it is oral or written. In other words, students' abilities to attend to and process corrective feedback may

be influenced by anxiety and the nature of this influence may vary according to the mode in which CF is delivered.

It is also plausible that different types of CF will have differential effects on anxiety leading to differences in learning outcomes. For example, recasts, the most implicit and mitigated type of CF, may provoke less anxiety from learners than metalinguisitic CF, which is considered to be intrusive and face-threatening by learners.

Another hypothesis concerns the role of metalinguistic CF, which can be considered taxing on learners' cognitive ability. If Sparks et al.'s (2000) Linguistic Coding Difference Hypothesis is correct, one might expect that more cognitively challenging types of CF (such as metalinguistic CF) will arouse greater anxiety in learners. Therefore, it can be hypothesized that learners who are more prone to language anxiety might be more negatively affected by metalinguistic feedback and less influenced by recasts or direct correction (which places less of a burden on cognitive processing).

7.2.3 Learner Attitudes Toward Corrective Feedback

In this section I will first briefly discuss how 'attitudes' have been conceptualized somewhat differently from 'beliefs', and I will then provide a brief review of the research that has explored learners' *attitudes towards error correction*, the second affective variable investigated in my experimental study.

Dörnyei (2005, p. 214) makes a distinction between 'attitudes' and 'beliefs' as follows:

> The main difference, in fact, between the conception of attitudes and beliefs is exactly that the latter have a stronger factual support whereas the former are more deeply embedded in our minds and can be rooted back in our past or in the influence of the modelling example of some significant person around us.

An example will help make the distinction between beliefs and attitudes a little clearer:

> The teacher's corrections of my errors will help me learn = *belief*
> I want the teacher to correct all my errors = *attitude*

However, as Ajzen (1988) points out, many researchers have failed to keep the distinctions between beliefs, attitudes, and intentions clear in their operationalizations of these constructs. This is not so surprising given that the boundaries between them are not exact. I have elected to examine 'attitudes' in the study reported in my experimental research on the grounds that my concern is how learners respond *affectively* to error correction. For this reason, in this section I will focus on attitudes and will not consider the substantial literature on learner beliefs (e.g., Horwitz, 1987; Mori, 1999).

Corrective feedback research into learner attitudes has been largely descriptive, cataloguing learners' perceptions and preferences as to the utility of grammar

instruction and different ways of providing feedback. In a study of written CF in composition classes, Leki (1991) examined 100 ESL college-level students' preferences for error correction. Her questionnaire measured various items including the students' perceptions about (1) the best source of help with their writing and (2) the best ways for teachers to provide written CF. Her findings indicated that perfect grammar was one of the aspects of writing they valued most, and that they considered error correction the best source of help from the teacher in this respect. Most of her students expressed a strong desire to learn from CF procedures. However, Leki also reported that despite their preference for error correction, some students did not pay attention to written CF on grammatical accuracy. Regarding the students' preferences for the type of CF, 67% of the students wanted their teacher to provide indirect CF indicating the location of the error together with metalinguistic clues to help them to correct the error. Twenty-five percent of the students considered direct CF providing the correct error most desirable. Lastly, no students approved of indirect CF by itself (i.e., simply telling them they had committed an error but requiring them to find the error and make the correction themselves without any assistance).

In another study carried out in writing classes, Enginarlar (1993) investigated 47 students' feelings about the utility and instructional value of written CF. In this case, the CF consisted of providing error correction on grammatical accuracy, vocabulary and mechanics, using an error coding system. He found that while the students did not favor revision exercises, the majority of the students valued the teacher's CF on their written compositions highly. Upon being questioned as to who the best CF provider is (i.e., the teacher, themselves or another student), they expressed a strong preference for the teacher's provision of CF. This finding corroborates Leki's (1991) results. It would seem then that learners desire the teacher's involvement in the error correction process.

In a large-scale study, Schulz (1996) investigated both L2 university students' and their teachers' attitudes towards grammar instruction and error correction using a questionnaire consisting of multiple-choice items. The findings indicated that the 824 students she surveyed displayed positive attitudes towards error correction. The students' attitudes sharply contrasted with those of the teachers, who did not value the utility of their own feedback. In a follow-up study, Schulz (2001) added 607 FL students from Colombia to the sample from Schulz (1996) in order to compare student and teacher perceptions about the role of explicit grammar and error correction in the two samples. She reported that in general, both ESL students in the US and FL students in Colombia viewed grammar instruction and corrective feedback as very important for learning a second/foreign language. However, Truscott (1996) points out that what learners prefer and desire may not be what is actually best for acquisition. Thus, what is needed is an empirical study that examines the relationship between learners' attitudes towards correction and grammar and the actual learning resulting from CF.

While a number of studies have explored learner attitudes to and perceptions of CF and grammar instruction, few studies have investigated the relationship between learner attitudes to corrective feedback and the learning resulting from it.

To conclude, research has shown that one of the key characteristics of a good language learner is the ability to attend to linguistic forms and grammatical accuracy, and to try to reduce the errors they make by monitoring their linguistic performance (e.g., Halbach, 2000; Rubin, 1975). Schulz's (2001) study reviewed earlier points to the likelihood that learners who have a strong desire for grammatical accuracy have a positive attitude towards error correction, suggesting a close relationship between the two. These characteristics of learner attitudes are likely to affect the extent to which they engage with the learning processes. We can surmise that attitudes affect learner behaviors, which in turn influence learning. It can then be hypothesized that learners with positive attitudes towards CF and grammatical accuracy will benefit more from CF than those with negative attitudes.

7.3 Sheen's Experimental Study

In the preceding sections, I considered three individual difference variables – language aptitude, anxiety and CF-specific attitudes – that have been found to impact second language acquisition. The study reported in this section investigated the impact that these cognitive and affective individual difference factors had on learners' ability to make use of oral and written corrective feedback for acquisition. The study was intended to further ID research by addressing the role that individual difference factors play in the processes of language acquisition (as opposed to L2 achievement or proficiency). To this end, the following three research questions were posed:

1. Do learners' language analytic abilities mediate the effect of oral and written corrective feedback?
2. Does learner anxiety mediate the effect of oral and written corrective feedback?
3. Do learners' attitudes towards error correction mediate the effect of oral and written corrective feedback?

7.3.1 Method

7.3.1.1 Design

The experimental study reported below employed a method similar to that of the studies reported in Chapters 4, 5 and 6. The main difference from the previous studies lies in the investigation of ID factors. In this section I provide a brief description of the method of this study focusing on how it differed from the previous studies reported in this book.

The design, participants, target structure, corrective feedback treatments and testing instruments were the same as in the study reported in Chapter 6. However, this study also involved a correlational analysis of the relationship between the three

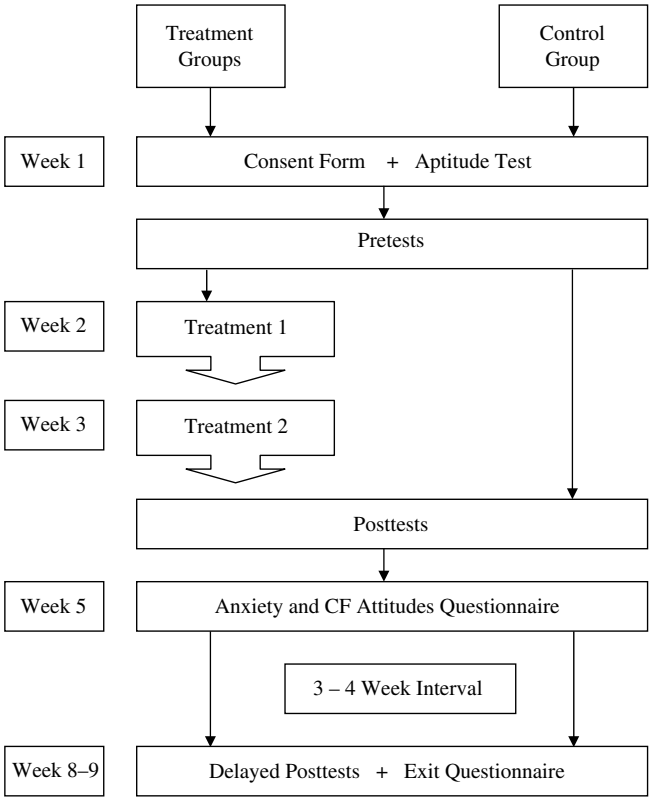


Fig. 7.1 Design of the study

individual learner variables (one cognitive, two affective) and criterion test scores in the posttests and delayed posttests, with a view to examine the moderating role of these variables on the effects of the error correction treatment. Figure 7.1 illustrates the overall design of the study.

7.3.1.2 Instruments Used to Measure Individual Differences

1. Aptitude (Language Analysis) test

As pointed out in Section 7.2.1, aptitude is a complex construct, distinct from general intelligence and achievement (Carroll, 1981). In this study I focused on just one aspect of language aptitude – what Skehan (1998) calls *'language analytic ability'*, operationalized as the ability to analyze language and to create and apply certain rules to new sentences.

The instrument chosen to measure language analysis was originally developed by István Ottó and the version I used came from Schmitt et al. (2003). The test

consisted of 14 multiple choice items. The learners were given a glossary consisting of words and sentences from an artificial language and their English translations. They were then given 14 English sentences and for each sentence were asked to choose the correct translation from the four choices provided. In order to make the correct choice, the learners needed to analyze grammatical markers supplied in the glossary and apply these to the multiple-choice translations (see Appendix 1 in Chapter 7 for the entire test).

This language analysis test was scored on a discrete item basis. One point was given for a correct answer. A zero-point was given when the student did not mark an answer or marked more than one answer. Fourteen points was the perfect score for this test, and students' final scores were calculated as percentages.

2. Questionnaire

In order to examine learner factors potentially moderating the effect of error correction, a questionnaire was developed to measure learners' disposition towards learning English in two content areas: (1) anxiety and (2) attitudes towards error correction (see Appendix 2 in Chapter 7).

All of the items used six-point Likert scales ranging from 'Strongly disagree' to 'Strongly agree' to measure the degree of learners' feelings and beliefs. For each content area, multiple items were constructed to provide a reliable measure of the learners' feelings and beliefs as multi-item scales increased validity and reliability (Dörnyei, 2003). There were at least six items per content area in the questionnaire.

For the content area regarding anxiety, I drew on items previously used by Dörnyei and MacIntyre (see Dörnyei, 2003 for a list of published instruments). The items in the other content area (i.e., attitudes towards errors) were developed by the researcher. For the main study, a total of 22 items was constructed covering the two content areas, along with questions asking about participants' background (e.g., age, gender, first language, highest level of education achieved, length of residence). Each content area is considered below, together with an example statement taken from the questionnaire. The *anxiety* items measured how anxious the students felt in the classroom and the extent to which they felt afraid of participating in class by speaking or asking questions. *Attitude towards error correction* measured the degree to which learners were disposed to accept error correction and whether they perceived teacher's correction as helpful and important, together with the related issue of their overall attitude towards grammatical accuracy (correctness).

In scoring the questionnaire responses, negatively worded items in the survey were adjusted so that the responses could consistently range from 1 (the most negative score) to 6 (the most positive score) throughout the survey. For each student, total scores for each of the two content areas were calculated first. Then the scores were divided by the number of items in each area so that each student received an average score for each variable on a scale of 1–6 (1=most negative, 6=most positive).

7.3.1.3 Procedures

1. Aptitude (Language Analysis) test

The researcher explained the instructions of the test clearly to the students and walked the students through the first question item without telling them the correct answer. This made most of the intimidated students feel relaxed. Twenty minutes were given for this test.

2. Questionnaire

Care was taken in order to preserve respondent anonymity. To accomplish this, each questionnaire was pre-coded (i.e., an identifying code for each student was written on the questionnaire) and, prior to administering the questionnaire, a slip of paper (in the form of a Post-It) containing the student's name and his/her unique code was attached to the questionnaire. Each questionnaire was then given out to the corresponding student without the slip of paper so that no questionnaire could be identified (in terms of their name) except by the researcher. The participants were also reassured that their responses would remain confidential and would never be revealed to their teachers.

The researcher spent approximately 10 min explaining key vocabulary and expressions from the questionnaire and discussed a number of statements that might be difficult for the students to understand. The students were told not to guess the meaning of the statements if they were not clear to them. Instead, they were told to ask the researcher questions or use their dictionaries. Twenty minutes were given for administering the survey. Prior to collecting the questionnaires from the students, the researcher took care to ensure that they did not omit any items or produce more than one response for each item.

7.3.1.4 Test Reliability

With regard to the three criterion measures (speeded dictation, writing and error correction tests), readers should refer to Section 6.3.1 where the percentage agreement scores for the dictation and writing tests and reliability coefficients for the error correction test are reported in detail.

1. Aptitude (Language Analysis) test

The internal consistency reliability of the aptitude test was estimated using Cronbach's alpha; reliability coefficients for the 14 items produced an alpha of 0.92 ($M = 50.50$, $SD = 19.95$, $N = 143$).

2. Questionnaire

Reliability using standardized Cronbach alpha was calculated and the results are presented in Tables 7.2 and 7.3. Alpha coefficients above 0.70 are considered reliable whereas alpha coefficients below 0.60 should be interpreted as a warning sign (Dörnyei, 2003). Both the item sets for 'anxiety' and 'attitudes towards error correction' produced coefficients above 0.75. It should be noted that the alpha for

Table 7.2 Reliability analysis for 'anxiety'

Item	Corrected item-total correlation	Cronbach alpha if item deleted
1. I always feel that the other students speak English better than I do.	0.52	0.77
2. When I give my answers in this class, I often lose confidence.	0.68	0.73
3. I feel good when I have to speak English in front of my classmates.	0.53	0.76
4. I'm afraid the other students will laugh at me when I speak English.	0.60	0.75
5. I'm enjoying my English lessons in this class because I'm comfortable with this level of English.	0.26	0.81
6. I'm generally nervous when participating in my English class.	0.61	0.74

Cronbach alpha for the 6 items = 0.79.

Table 7.3 Reliability analysis for 'attitude towards CF'

Item	Corrected item-total correlation	Cronbach alpha if item deleted
1. I always try hard to use correct sentences when I am speaking.	0.20	0.75
2. I want my teacher to correct my English errors all the time.	0.32	0.74
3. When speaking in this class, I'm not worried about English grammar.	0.24	0.75
4. The best way to learn English is when the teacher corrects my errors.	0.56	0.70
5. I'm afraid of speaking right after the teacher corrects my errors.	0.34	0.74
6. I feel bored if the teacher always focuses on grammatical errors.	0.42	0.71
7. When my classmates make errors, I try to think of the correct answer in head.	0.56	0.70
8. Mastering grammar is my number one goal in learning English.	0.52	0.71
9. It bothers me when the teacher corrects my errors.	0.49	0.71
10. I think a good student should always speak English accurately.	0.33	0.74

Cronbach alpha for the 10 items = 0.75.

the attitudes items is considerably higher than that reported for learner beliefs questionnaires (see Basturkmen et al., 2004).

7.3.1.5 Data Analysis

Readers should refer to Sections 4.3.1 and 5.3.1 for a detailed account of how the data from the tests was analyzed. In addition to the series of repeated measures ANOVA and post-hoc analyses, ANCOVAs and correlational analyses were performed in order to answer the research questions which address the inter-relatedness of the individual difference factors and the effects of CF. As in the previous studies, only total test scores were used in the analyses.

7.3.2 Results

Before presenting the results for the three research questions, descriptive statistics for the total test scores on the dictation, writing and error correction tests for each of the five groups are presented in Table 7.4.

7.3.2.1 The Relationship Between Language Aptitude and CF Success

This section reports the results for research question (1), which concerned the relationship between language analytic ability and the effect of CF. Table 7.5 displays the descriptive statistics for the language aptitude test. The scores ranged from 2 to 14, with mean scores ranging between 6.4 and 7.6 for the five groups. A one-way ANOVA indicated that there was no statistically significant difference across the groups, $F(4, 138) = 0.82$, ns.

To address research question (1), a Pearson correlation analysis was performed, using aptitude scores and short-term gain scores between the pretest and posttest and long-term gain scores between pretest and delayed posttest. Short-term gains were calculated by subtracting the pretest scores from the posttest 1 scores; long-term gains were computed by subtracting the pretest scores from the posttest 2 scores.

Table 7.6 summarizes the results of the analysis. The correlational analysis reveals a significant positive association between the students' aptitude for language

Table 7.4 Group means and standard deviations for total test scores

	Pretest		Posttest 1		Posttest 2	
	M	*SD*	*M*	*SD*	*M*	*SD*
Oral recast group ($n = 26$)	46.3	15.0	52.6	15.5	54.0	16.4
Oral meta group ($n = 26$)	50.4	14.0	61.4	15.0	63.4	16.9
Written direct group ($n = 31$)	44.1	11.9	58.3	15.3	57.5	14.4
Written meta group ($n = 32$)	49.6	16.9	65.4	16.3	69.4	15.3
Control group ($n = 28$)	48.3	14.2	52.1	15.6	51.2	16.2

Table 7.5 Descriptive statistics for the language analysis test

Group	*M*	*SD*	Minimum	Maximum
Oral recast	7.6	2.4	3	11
(*N*=26)	53.9%	16.8%	21%	79%
Oral meta	7.4	3.0	2	14
(*N*=26)	52.8%	21.7%	14%	100%
Written direct	6.8	3.0	2	13
(*N*=31)	48.4%	21.3%	14%	93%
Written meta	7.3	2.9	2	13
(*N*=32)	52.2%	20.8%	14%	93%
Control	6.4	2.6	3	12
(*N*=28)	45.7%	18.7%	21%	86%

Table 7.6 Correlations between the gain scores and language analysis scores

CF group	Gain	Language analysis score (r)
Oral recast ($N = 26$)	Short-term	–0.13
	Long-term	–0.07
Oral meta ($N = 26$)	Short-term	0.69**
	Long-term	0.68**
Written direct ($N = 31$)	Short-term	0.46**
	Long-term	0.54**
Written meta ($N = 32$)	Short-term	0.57**
	Long-term	0.63**
Control ($N = 28$)	Short-term	0.27
	Long-term	0.38*

*$p < 0.05$.
**$p < 0.01$.

analysis and both the short-term and long-term gains in all of the treatment groups except the oral recast group. The oral metalinguistic group yielded the highest correlation coefficients ($r = 0.69$ and 0.68); that is, language aptitude accounted for close to 50% of the variance in both the short- and long-term gain scores. This contrasts markedly with the coefficients for the oral recast group, which were close to zero. There was also a significant positive correlation between the aptitude scores and the long-term gain scores ($r = 0.38$) – but not with the short-term gain scores – in the control group.

An alternative way to address research question (1) is to examine the possible role of aptitude as a covariate in a repeated measures ANCOVA. For this analysis, a five groups × three times ANCOVA with the language analysis scores as the covariate was performed. Table 7.7 summarizes the results of this analysis.

As shown in Table 7.7, the repeated measures ANCOVA confirmed that there was a significant effect of language analysis ability as the covariate. The table also confirms that after the mediating effect of this covariate had been removed, there was still a significant effect of the corrective feedback. Also, the significant Time × CF

Table 7.7 Repeated measures ANCOVA for criterion test scores with a language analysis as the covariate

Source	*df*	*F*	*p*
Between students			
Aptitude	1	6.75	0.01
Corrective feedback (CF)	3	3.29	0.02
Error	110	(595.5)	
Within students			
Time	1.87	1.19	0.24
Time × Aptitude	1.87	7.10	< 0.001
Time × CF	5.61	25.97	< 0.001
Error	205.6	(36.03)	

interaction demonstrates that there was a change in the learners' test performance from one test to another even after the effect of their language analysis ability had been removed.

7.3.2.2 The Relationship Between Language Anxiety and CF Success

The results reported in this section address research question (2), which investigated the relationship between the learners' reported anxiety and the effect of CF. Table 7.8 displays the descriptive statistics for the language anxiety gain scores for the five groups. The questionnaire items used to measure language anxiety used a Likert scale (1–6), and the mean scores for the five groups ranged from 3.06 to 3.72. A one-way ANOVA revealed that these differences were not statistically significant, $F(4, 138) = 1.62$, ns.

Table 7.9 presents the results of the correlational analyses that investigated the relationship between the test gain scores (short-term and long-term) and the language anxiety scores. In the case of the oral metalinguistic group, there was a significant negative association between the students' gain scores and their scores for language anxiety. This was evident in the case of both the short- and long-term gain scores ($r = –0.57$ and $r = –0.46$ respectively). Thus, the language anxiety

Table 7.8 Descriptive statistics for language anxiety scores *(on a 1–6 Likert scale)*

Group	*M*	*SD*	Minimum	Maximum
Oral recast (*N*=26)	3.38	1.36	1	6
Oral meta (*N*=26)	3.08	1.02	2	6
Written direct (*N*=31)	3.06	0.93	1	5
Written meta (*N*=32)	3.72	1.20	2	6
Control (*N*=28)	3.33	1.28	1	6

Meta = Metalinguistic correction.

Table 7.9 Correlations between the gain scores and anxiety scores

Group	Gain	Anxiety score (*r*)
Oral recast (*N*=26)	Short-term	–0.37
	Long-term	–0.26
Oral meta (*N*=26)	Short-term	–0.57**
	Long-term	–0.46*
Written direct (*N*=31)	Short-term	–0.23
	Long-term	–0.13
Written meta (*N*=32)	Short-term	–0.18
	Long-term	–0.12
Control (*N*=28)	Short-term	–0.01
	Long-term	–0.05

Meta = Metalinguistic correction.
*$p < 0.05$.
**$p < 0.01$.

Table 7.10 Repeated measures ANCOVA for criterion test scores with anxiety as the covariate

Source	*df*	*F*	*p*
Between students			
Anxiety	1	1.37	0.24
Corrective feedback (CF)	3	3.43	0.01
Error	110	(595.5)	
Within students			
Time	1.87	1.19	<0.001
Time × Anxiety	1.87	7.10	<0.01
Time × CF	5.61	25.97	<0.001
Error	205.6	(36.03)	

score accounted for 33% of the variance in the short-term gain scores and 21% in the long-term gain scores. In contrast, while no significant association was found between language anxiety and gain scores in the other three CF treatment groups or in the control group, the correlation involving the oral recast group approached significance.

Table 7.10 displays the results of repeated measures ANCOVA with language anxiety as the covariate. This showed that there was no significant difference in the five groups' language anxiety scores, but that there was still a significant effect for corrective feedback after the learners' language anxiety had been accounted for.

7.3.2.3 The Relationship Between Learner Attitudes and CF Success

This section presents the results for the last research question (3), which asked about the mediating effect of learner attitudes towards CF on the effectiveness of CF. Table 7.11 shows the descriptive statistics for the scores of learner attitudes towards error correction. As with the language anxiety questionnaire, the instrument measured learner attitudes on a Likert scale (1–6). The average scores for the five groups ranged from 4.04 to 4.56 with the oral recast group achieving the lowest score and the written metalinguistic group the highest. However, a one-way ANOVA indicated that these group differences were not significant, $F(4, 138) = 1.67$, ns.

Table 7.11 Descriptive statistics for learner attitudes scores *(on a 1–6 Likert scale)*

Group	*M*	*SD*	Min.	Max
Oral recast (*N*=26)	4.04	1.01	2	6
Oral meta (*N*=26)	4.30	1.39	2	6
Written direct (*N*=31)	4.06	0.93	3	6
Written meta (*N*=32)	4.56	1.25	2	6
Control (*N*=28)	4.32	0.90	2	6

Meta = Metalinguistic correction.

Table 7.12 Correlations between gain score and attitudes scores

Group	Gain	Attitudes score (*r*)
Oral recast (*N*=26)	Short-term	0.20
	Long-term	0.07
Oral meta (*N*=26)	Short-term	0.56**
	Long-term	0.56**
Written direct (*N*=31)	Short-term	0.43*
	Long-term	0.54**
Written meta (*N*=32)	Short-term	0.54**
	Long-term	0.59**
Control (*N*=28)	Short-term	0.14
	Long-term	0.21

Meta = Metalingustic correction.
*$p < 0.05$.
**$p < 0.01$.

Table 7.12 presents the results of a Pearson correlation analysis for attitudes' scores and short-term gain scores (between the pretest and posttest) as well as long-term gain scores (between pretest and the delayed posttest). This analysis reveals a significant positive association between the written CF treatment groups' attitudes towards error correction and both their short-term and long-term gains. The written metalinguistic group yielded the highest correlation coefficient ($r = 0.59$) with learner attitudes accounting for 35% of the variance in long-term gain scores. There was also a positive correlation between attitudes scores and short-term and long-term gains in the oral metalinguistic group. On the other hand, there was no significant relationship between the learners' CF attitude scores and gain scores in the oral recast group or the control group.

In order to examine the extent to which learner attitudes influence the effect of CF, a repeated measures ANCOVA (with learner attitudes as the covariate) was performed. Table 7.13 shows the results of this analysis. The difference in the attitudes

Table 7.13 Repeated measures ANCOVA for criterion test scores with learner attitudes as the covariate

Source	*df*	*F*	*p*
Between students			
Attitudes	1	1.97	0.16
Corrective feedback (CF)	3	3.01	0.01
Error	110	(595.5)	
Within students			
Time	1.87	1.19	0.05
Time × Attitudes	1.87	7.10	< 0.001
Time × CF	5.61	25.97	< 0.001
Error	205.6	(36.03)	

scores did not differ significantly between the groups, whereas significant group differences according to the CF treatment were evident after the effects of the learners' attitudes had been removed.

7.3.3 Discussion

This section discusses the results for the three research questions concerning the mediating effects of the three learner factors on the success of corrective feedback: (1) Do learners' language analytic abilities mediate the effect of corrective feedback?; (2) Does learner anxiety mediate the effect of corrective feedback?; and (3) Do learners' attitudes towards error correction mediate the effect of corrective feedback? We will consider each of these in turn.

7.3.3.1 The Mediating Effect of Language Aptitude

The results obtained for the mediating effect of language aptitude in Section 7.3.2 raise a number of questions:

1. Why did language analytic ability mediate the effect of the CF treatment in the case of the oral metalinguistic group, the written direct group and the written metalinguistic group but not with the oral recast group?
2. Why was the mediating effect so strong for the two metalinguistic groups?
3. Why was the mediating effect for language analytic ability stronger in the case of the oral metalinguistic group than for the two written CF groups?
4. Why did language analytic ability correlate significantly with long-term gain scores in the case of the control group?

I will address each of these questions in turn.

No correlation for oral recasts

High levels of language analytic ability enhanced students' ability to benefit from the corrective feedback in all of the treatment groups except the oral recast group. In fact, in the recast group a near-zero correlation was found between language analytic ability and gain scores. This can be explained by the learners' lack of awareness of the target of the CF. As Robinson (2001) has argued, language aptitude and awareness are closely related; thus, for language aptitude to have an impact on the effect of CF, it would be necessary for learners to have become aware that they were being corrected and also what specific feature was being corrected. However, as reported in Chapter 4, the exit questionnaire showed that learners in the recast group were not aware of the corrective function of the recasts (see Table 4.8). Thus, it is possible that the learners with high aptitude in the recast group did not benefit from recasts because they were not aware of what needed to be analyzed. It may well be that recasts that occur as brief time-outs from communication and target

a non-salient grammatical feature such as articles do not result in the conscious cognitive comparison which language analytic ability is likely to facilitate.

It should be noted, however, that my own study examined only one component of language aptitude – language analytic ability. It is possible that some other component of language aptitude – for example, phonemic coding ability or short-term memory – would have facilitated the processing of the recasts.

In contrast to the oral recast group, the oral metalinguistic, written direct and written metalinguistic CF groups were likely to have developed awareness of what the target of the feedback was. Thus, learners in these groups with high language analytic ability were more able to benefit from the CF than those with low language analytic ability. Naturally, this advantage was more evident when the CF included metalinguistic information and indeed, in these cases we can observe strong correlations ($r = 0.56$ or higher) between language analytic ability and both immediate and delayed gains.

Strong correlation for metalinguistic CF

As discussed in Sections 4.3.3 and 5.3.3, the greater enhancing effect of language analytic ability in the case of metalinguistic feedback can be explained along the lines of Schmidt's (1995) awareness as understanding, which is triggered by metalinguistic CF. In other words, metalinguistic CF affords a higher level of awareness that facilitates learning, with this awareness being triggered by a process that takes place more readily in learners with a greater capacity to engage in language analysis.

Stronger correlation for the oral metalinguistic CF than for written CF

The correlations between language analytic ability and gain scores were higher for the oral group than for both written groups. As discussed in Chapter 6 (also see Table 6.1), one major difference between oral and written CF is that the former is immediate and thus is taxing on learners' short-term memory, whereas the latter is delayed because learners have a permanent record of the feedback to work on and so is less taxing on short-term memory. Consequently, it is possible that language analytic ability is especially important when learners' short-term memories are under pressure, as was the case when responding to the oral metalinguistic feedback.

There is, however, another possibility. The learners in the oral metalinguistic group had more feedback data to work on than those in the two written CF groups for the simple reason that they were exposed not just to corrections directed at their own errors, but also those directed at other students' errors. For example, the students in the recast and metalinguistic CF oral groups were exposed to a total of 21 and 16 corrections, respectively. It should be noted that although these corrections were directed at individual students, all of the students functioned as 'hearers'. In contrast, the individual students in the written CF groups were, on average, exposed to far fewer corrections (i.e. approximately 8 in the case of the written direct group and 7 in the case of the written metalinguistic group). In other words, the oral CF groups had access to more corrections than the written CF groups, and thus there was more material available for analysis. Learners with high language analytic abilities may have been in a better position to exploit this.

Correlation for the control group

Though weak, a significant association between language aptitude and long-term gain scores was found in the control group. This may simply reflect the well-established fact that language aptitude and L2 achievement are highly correlated, as discussed in the review of the language aptitude literature in Section 7.2.1. However, this does raise the question as to why there was no similar correlation evident in the oral recast group. The explanation may be that while the oral recast group did benefit from the feedback to some extent, this had nothing to do with their language analysis ability.

7.3.3.2 The Mediating Effect of Language Anxiety

To discuss the mediating effect of language anxiety, recall that in Section 6.3 my experimental study found that all CF types except oral recasts resulted in learning (i.e., they outperformed the control group). The results with regard to language anxiety in this chapter show that, by and large, there is a general tendency for learners with lower anxiety to outperform those with higher anxiety. However, this inverse relationship between anxiety and gain scores was statistically significant only in the case of the oral metalinguistic CF.

Recall also that in Section 7.2.2, we hypothesized that implicit and mitigating CF types, such as oral recasts, provoke less anxiety, thereby benefiting learners to a greater extent than explicit and face-threatening CF types such as metalinguistic CF. The results reported in this chapter confirm this hypothesis as learner anxiety was found to mediate the learning outcomes of oral metalinguistic CF, but not those of the two written CF types. This finding points to the fact that the medium of the CF affects whether anxiety plays a mediating role. Oral CF runs the risk of embarrassing learners 'publicly' in front of the whole class, but this danger is not present in the case of written CF as it is undertaken 'privately'. This finding that learner anxiety is only an issue in oral feedback has important pedagogical implications that will be considered in Chapter 8.

The relationship between anxiety and oral recasts warrants a closer inspection given that the correlation coefficient approached statistical significance, especially in the case of short-term gains. Hence, a post-hoc analysis was performed as follow: the oral recast group was divided into two sub-groups; a high anxiety and low anxiety group. Then, the test scores for each group at posttest 1 and posttest 2 were compared with the control group's posttest scores using an f-test. This analysis revealed that the low anxiety sub-group outperformed the control group at posttest 1, $F(2, 51) = 7.42$, $p < 0.05$ and posttest 2, $F(2, 51) = 6.28$, $p < 0.05$. However, the high anxiety subgroup did not outperform the control group at either posttest 1 or posttest 2 ($p > 0.05$, ns).

Given that oral recasts were the only CF that produced no significant positive effect, this is an interesting finding. After all, it appears that the oral recasts did contribute to learning, but only for those learners with low levels of anxiety. This can be explained by the fact that, whereas high anxiety learners were fearful of

having to speak in front of the whole class and were thus unable to attend to the recasts, the low anxiety learners had no such problem.

These results lend some support to Krashen's (1982) arguments regarding corrective feedback. Learner anxiety does play a role where oral feedback is concerned; however, it should be noted that anxiety only prevents learners from benefiting from oral feedback in the case of high anxiety learners, and that it does not play a role at all where written feedback is concerned.

7.3.3.3 The Mediating Effect of Learner Attitudes

The results in Section 7.3.2 indicated that there was no relationship between attitudes and gain scores in the oral recast group. Obviously, a relationship between attitudes towards CF and the effects of CF can only be expected if learners are aware that they are being corrected and what is being corrected. This condition was present in the oral metalinguistic group (but not in the oral recast group), and in this case the correlation between learner attitudes and gain scores was statistically significant both in the short-term and long-term gains.

Learners' attitudes towards error correction figured much more strongly in the case of the written groups. The correlations between attitudes and gains were statistically significant for both the written direct and the written metalinguistic groups and for both short-term and long-term gains. Thus, whereas anxiety was found to have a stronger mediating effect on oral CF, attitudes had a much stronger mediating effect on written CF.

There is, however, another way of looking at these results. Whereas attitudes played no role in the implicit CF group (i.e., the oral recast group), they did play a role in the explicit CF groups (i.e., the oral metalinguistic, written direct and written metalinguistic groups). How can this be explained? Again, the explanation may lie in the extent to which the learners were aware that they were being corrected. Attitudes towards error correction cannot be expected to have any mediating effect if learners are not aware that they were being corrected. An interesting picture emerges if the groups are ranked in terms of the size of the correlations shown in Table 7.11. That is, the rank order matches the rank order for the students' awareness of the purpose and focus of the instruction as shown in Tables 4.8 and 5.6.

To sum up, the results show that explicit CF is beneficial for learners who have positive attitudes towards correction to a much greater extent than for those who do not. This again has pedagogical implications, which will be considered in Chapter 8.

7.3.3.4 Summary and Concluding Comments

The three preceding sections reported and discussed the results for the mediating influence of the three individual learner factors – one cognitive factor, language aptitude, and two affective factors, language anxiety and learner attitudes towards corrective feedback – on the effects that four types of corrective feedback had on the

Table 7.14 Summary of the mediating effects of three individual difference factors

	Language analytic ability	Language anxiety	Attitudes towards CF
Oral recasts	No	Yes	No
Oral meta	Yes	Yes	Yes
Written direct	Yes	No	Yes
Written meta	Yes	No	Yes

Meta = metalinguistic correction.

learning of English articles. The nature of the mediating effects that were identified are summarized in Table 7.14.

By and large, the four types of CF produced similar correlational results with regard to two ID variables – language aptitude and learner attitudes – in the sense that whereas the effectiveness of oral recasts was not influenced by these variables, the effectiveness of oral metalinguistic CF and the two written types of CF was. I have suggested that the explanation for this pattern of results lies primarily in whether the learners were aware that they were being corrected. If they were aware, as was the case in the more explicit types of CF, then these factors played a role; if they were not aware, as was the case with the one implicit type of CF (oral recasts), no mediating effect was evident. Thus the extent to which these two factors influence learners' ability to benefit from CF depends crucially on whether they identify the corrective force of the CF.

Table 7.14 shows that anxiety works in an entirely different way. The mediating role of anxiety is only evident in the case of oral feedback: learners with high anxiety are unable to benefit from oral CF. In contrast, anxiety plays no role in written CF.

According to Vigil and Oller (1976), a distinction can be made between cognitive and affective feedback. They explain that cognitive CF is not necessarily beneficial if it raises the student's affective filter and thus prevents learners from taking in language input. The results reported in this chapter help to clarify Vigil and Oller's claim. First, CF is beneficial especially if it is explicit in nature and learners are strong in language analysis ability and have positive attitudes towards error correction. Second, CF is not beneficial if it is oral in nature and learners experience a high level of anxiety.

These findings indicate that in order to maximize the effectiveness of CF in the classroom, individual learner factors need to be taken into account. The results also have research applications in that some ambiguity in previous findings may have been caused by the fact that the significant effects of various ID factors have not been accounted or controlled for.

7.4 Subsequent Experimental Research

The preceding sections dealt with three major ID factors that were hypothesized to be linked to the effectiveness of different types of CF. As noted earlier, few CF

studies had previously investigated this area. My study constituted one of the first attempts to examine the mediating role that both cognitive and affective ID factors play in the differential effect of CF on learning. I will conclude this chapter with two other studies that have since attempted this in order to further explore the relationship between cognitive ID factors and recasts.

Trofimovich et al. (2007) tested 32 adult Francophone learners of English who completed a picture description task (which also served as a pretest), during which their errors were recast. The recasts targeted three different linguistic features – (1) possessive determiners, (2) intransitive verbs, and (3) transitive verbs followed by a possessive determiner. Learner noticing was measured immediately following the recasts. There was also a posttest and delayed posttest (2–12 min later), both of which involved the same activities as the picture description task that served as the pretest. Afterwards, a series of ID tests were administered in order to measure the learners' (1) phonological memory, (2) working memory, (3) executive attention management/attention control, and (4) grammatical sensitivity/analytic ability.

The results show that, overall, the learners in their study noticed the corrective force of the recasts targeting both lexical and morphosyntactic errors irrespective of whether they repaired their errors. With regard to the four ID factors and their relationship with (1) the noticing of recasts and (2) the subsequent efficacy of recasts (measured by the learners' production accuracy), a series of analyses revealed that all four ID factors were found to be significantly linked to the modified output following the recasts that targeted morphosyntactic errors. That is, those learners who had higher ID scores were better able to modify their output following such recasts. However, somewhat surprisingly, they found no significant relationship between noticing of the recasts and these IDs. In fact, Trofimovich et al.'s study (2007), while supporting the facilitative role of recasts in promoting L2 learning, failed to clearly establish a three-way relationship among learners' ID factors, the noticeability of recasts and subsequent learner outcome. As they pointed out, the fact that their findings did not corroborate with those from Mackey et al. (2002) – i.e., failed to show a positive link with working memory and noticing of recasts – may be attributed to the different ways in which the noticeability of recasts was measured in the two studies, i.e., on-line visually cued discrimination accuracy in Trofimovich et al. vs. offline retrospective recall in Mackey et al. These contradictory findings warrant further exploration of the role that learners' working memory plays in assisting L2 development (also see Sachs and Suh, 2007 for a study of computer-mediated oral recasts and their association with working memory and L2 development).

Bigelow et al. (2006), in part replicating Philp's (2003) study of learners' noticing of recasts, investigated the potential impact of oral recasts on L2 acquisition by learners with very limited literacy. The linguistic feature the recasts targeted was question formation, following Pienemann, Johnston and Brindley's (1988) framework as in Philp's study. Bigelow et al. divided their sample of 8 young adult Somali ESL learners aged from 15 to 28 into high- and low-literate groups. All the learners received recasts on their errors during two communicative tasks (spot-the-difference tasks) and were then asked to knock on the table twice to signal that they had noticed the corrections and then to repeat the recasted utterances. Bigelow et al.

found that their learners' ability to notice a recast was significantly related to their literacy level on one measure (i.e., the mean proportion of correct and modified recall). However, they also reported that although the length of the recasts the learners were able to repeat was not mediated by their literacy skills, the number of errors that they were able to repair was. This small-scale study demonstrates that learners who are lacking in literacy skills may have difficulty in noticing the linguistic features that are corrected in recasts and thus may not be able to benefit acquisitionally from them.

While this line of research into cognitive variables impacting L2 acquisition is an important step forward, it is also important to look into the role of affective ID factors such as language anxiety. In light of the link that has been found between learner noticing, modified output, and subsequent learning (Egi, 2007a, 2007b, 2010; Mackey, 2006; McDonough, 2005), language anxiety can be predicted to interfere with learning because it inhibits learners' capacity to notice recasts and to produce learner uptake/modified output. For this reason, language anxiety is a good candidate for studying the relationship between individual differences, learning processes (such as those involving modified output) and learning.

In a follow-up study to the experimental study reported in this chapter, I set out to explore this issue (see Sheen, 2008). The recast control groups in my original study were further divided into high anxiety and low anxiety sub-groups, which were compared in terms of (1) the amount of modified output/learner repair and (2) the improvement in accuracy as measured by three tests. The low anxiety recast group scored significantly higher than both the high anxiety recast group and the low anxiety control group on two of the tests. The results also indicated that there was a significant difference between both the extent to which the two recast groups modified their output following the recasts and the extent to which they repaired their errors. That is, the less anxious learners were found to produce higher levels of modified output and to repair their errors more. In sum, these results showed that the recasts were only effective for low-anxiety learners, suggesting that language anxiety is a factor influencing not only whether recasts lead to modified output and repair but also whether they promote learning.

McDonough (2005) has made a strong case for the role played by modified output in L2 development. More recent studies suggest that modified output is also closely related to learner perception, noticing and noticing the gap (Egi, 2007a; Mackey, 2006). Thus, Sheen's (2008) study contributes to this line of research by demonstrating that there is a relationship between a psychological internal learner factor (language anxiety) and modified output, which influences the effect that recasts (as one form of interactional feedback) have on L2 learning.

Finally, it should be noted that there is now a large body of research that has documented other social and contextual factors that impact CF, such as teacher and/or learner beliefs and their preferences and attitudes towards CF (e.g., Basturkmen et al., 2004; Loewen et al., 2009; Yoshida, 2008). While most of this research to date does not provide clear evidence that these factors influence the effect that CF has on learning, it indicates the range of factors that are likely to do so.

The picture that emerges from the study reported in this chapter and from this brief review of the subsequent research is that, while CF can definitely facilitate language acquisition, its effect will not be the same for all learners. Cognitive and affective variables, as well as such factors as literacy, will influence the extent to which individual learners are able to benefit from it.

7.5 Conclusion

As demonstrated throughout this chapter, attention needs to given to the importance of examining the efficacy of different types of CF in relation to individual learner factors. The findings of my own experimental study together with Sheen (2008) show that the effects of different types of CF are mediated by learners' language analytic abilities, anxiety and attitudes towards CF. These studies have shown that IDs interact with learners' ability to utilize different types of CF. For example, whereas language analytic ability and learner attitudes towards correction influence learners' responses to metalinguistic feedback, it is language anxiety that influences their response to recasts.

In part, this research lends support to the position taken by sociocultural theorists such as Lantolf, namely that there is no one type of CF that works best for all learners. However, as I noted in Chapters 2 and 4, SCT emphasizes the need for the teacher to assist learners to individually construct a ZPD by interacting with them. However, the extent to which this is practical in many teaching contexts is uncertain. In this chapter I have examined individual learner factors that influence the extent to which learners are successful in processing the CF they receive. The challenge facing teachers is how they can accommodate these individual difference (ID) learner factors when teaching a whole class. However, whereas SCT requires the teacher to provide CF that is tuned to each individual learner in order to construct a ZPD, ID factors can be accommodated by classifying learners into general categories (e.g., high/low language analytic ability, high/low anxiety, form-oriented/meaning-oriented learners), which allows for the teacher to vary how he/she provides CF to suit such learners. Alternatively and perhaps more practically, the teacher can provide training to help disadvantaged learners to benefit from CF. In short, a teacher can address the differences that result from these ID factors without the need to tailor CF to each learner individually.

Appendix 1: Aptitude Test

Language Analysis

Name: _____Professor:_____Date:_____

The list in the box below contains words/phrases from an imaginary language along with their English translations. Following this, there will be 14 short English sentences, each with four possible translations into the imaginary language. Based on the examples given in the box, please try and work out which of the four options is the correct translation of each sentence. Thank you very much.

kau	dog	pa	we, us
meu	cat	xa	you
kau meud bo	The dog is chasing the cat.	pasau meud bo	Our dog is chasing the cat.
kau meud bi	The dog was chasing the cat.	pa meud bo	We are chasing the cat.
so	watch	paxbo	We are chasing you.
ciu	mouse	pa meud bor	We aren't chasing the cat.

1. The dog is watching the cat.
   a. kau meud so b. kau meud si
   c. meu kaud so d. meu kaud si
2. The cat was watching the mouse.
   a. meud ciu so b. meu ciud so
   c. meud ciu si d. meu ciud si
3. You are watching us.
   a. paxbo b. paxso
   c. xapbo d. xapso
4. You were chasing the dog.
   a. xa kaud bo b. pa kaud bo
   c. pa kaud bi d. xa kaud bi
5. We were watching you.
   a. xapsi b. paxso
   c. paxsi d. paxbi
6. You are not watching the cat.
   a. xa meud bor b. xa meud sor
   c. xa meud sir d. xa med sor
7. You are not chasing us.
   a. paxbor b. xapbo
   c. xapabor d. xapbor
8. We were not watching the dog.
   a. pa kaud sir b. pa kau sir
   c. pa kaud sor d. pa kaud bir
9. We were not chasing you.
   a. xapbir b. paxbir
   c. paxbor d. xapbor
10. Your cat is chasing the mouse.
    a. xacu meud bo b. xaseu ciud bo
    c. meuxa ciud bo d. ciuxa meud bo
11. You are not watching our dog.
    a. xa paseud bor b. xa pasaud sor
    c. xa pasaud so d. xa pasaud bor
12. Our mouse was not chasing the dog.
    a. oasiu kaud bi b. xasiu kaud sir
    c. xasiu kaud bi d. pasiu kaud bir
13. Your mouse is chasing us.
    a. xa ciu pabo b. xasiu pbo
    c. xaciu pa bo d. xasiu pabo
14. Our cat was not chasing your dog.
    a. psue xasaud bir b. pseu xsaud bir
    c. paseu xasaud bir d. paseu xsaud bir

Appendix 2: Questionnaire

How Do You Feel About Learning English?

There are a number of statements concerning your feelings about learning English. In each statement, please circle the number that best describes how you feel. There is no good or bad answer-----the researcher is only interested in your personal feelings this semester. Your professor will never see your answers. So, please give your honest answers. **Thank you so much for your time**.

Example:

"I like Manhattan."

1	2	3	4	5	6
Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree



1	I spend a lot of energy learning English.	1	2	3	4	5	6
2	I always feel that the other students speak English better than I do.	1	2	3	4	5	6
3	I always try hard to use correct sentences when I am speaking.	1	2	3	4	5	6
4	Learning English is really great.	1	2	3	4	5	6
5	During the classroom discussion, I often pay attention to my classmates' errors.	1	2	3	4	5	6
6	Learning English often gives me a feeling of success.	1	2	3	4	5	6
7	When I give my answers in this class, I often lose confidence.	1	2	3	4	5	6
8	When speaking in this class, I'm not worried about English grammar.	1	2	3	4	5	6
9	I feel learning English is a burden for me.	1	2	3	4	5	6
10	To improve my English, it is necessary that I learn from my own errors.	1	2	3	4	5	6
11	I want my teacher to correct my English errors all the time.	1	2	3	4	5	6
12	I learn things in this class that will be useful in the future.	1	2	3	4	5	6
13	I feel good when I have to speak English in front of my classmates.	1	2	3	4	5	6
14	It bothers me when the teacher corrects my errors.	1	2	3	4	5	6
15	Mastering grammar is my number one goal in learning English.	1	2	3	4	5	6
16	I really enjoy learning English.	1	2	3	4	5	6
17	I like to learn English by analyzing errors.	1	2	3	4	5	6
18	Learning English is one of the most important activities for me.	1	2	3	4	5	6
19	I'm afraid the other students will laugh at me when I speak English.	1	2	3	4	5	6
20	I try to express my thoughts as fast as possible even if my English isn't accurate.	1	2	3	4	5	6
21	English is an important part of my education.	1	2	3	4	5	6
22	The best way to learn English is when the teacher corrects my errors.	1	2	3	4	5	6
23	I would like to get to an advanced level in English.	1	2	3	4	5	6
24	I'm enjoying my English lessons because I'm comfortable with this level of English.	1	2	3	4	5	6
25	I think a good student should always speak English accurately.	1	2	3	4	5	6
26	I don't feel good about learning English.	1	2	3	4	5	6
27	I am afraid of speaking right after the teacher corrects my errors.	1	2	3	4	5	6
28	I have a very strong desire to learn English.	1	2	3	4	5	6
29	I'm generally nervous when participating in my English class.	1	2	3	4	5	6
30	I'm only interested in speaking English fluently (vs. accurately).	1	2	3	4	5	6
31	I always look forward to our English classes.	1	2	3	4	5	6
32	I don't like it if the teacher always focuses on grammatical errors.	1	2	3	4	5	6
33	I find grammar exercises very useful for improving speaking.	1	2	3	4	5	6
34	When my classmates make errors, I try to think of the correct answer in my head.	1	2	3	4	5	6

Chapter 8
Conclusion

This chapter provides my final thoughts on the topic of this book: oral and written corrective feedback, individual differences and L2 learning. I will first consider what I see as the overall contribution of the book before moving on to review the significance of CF research for SLA. There follows a summary of the main findings of this research. Finally, I will consider some implications for language pedagogy and teacher education.

8.1 The Significance of This Book

Before considering the contributions that I hope this book can make to our understanding of CF, some caveats are in order. First, the bulk of the CF research that I have examined in the book has been grounded in cognitive-interactionist SLA theories. It should be noted that the aim of the book was not to provide a comprehensive overview of research on CF, but to bring insights into the role that different types of oral and written CF play in L2 acquisition and the impact that individual difference factors have on learners' ability to process CF for acquisition. To this end, I have drawn extensively on my own experimental research. This examined only one grammatical feature – English articles – and, although I have also reported research that has investigated other features, I acknowledge that the range is limited, especially where written CF is concerned. We still know very little about whether CF – oral or written – can assist learners to acquire complex structures such as relative clauses or conditional patterns. A further limitation is that I have been able to examine the mediating role of only a small number of individual difference factors. There is still no research into the role played by age or motivation, both of which are likely to influence whether and how learners process CF. I have also focused on the corrective feedback that emanates from teachers (or researchers) and have ignored the substantial body of research that has investigated peer feedback. Furthermore, I have chosen not to include an account of CF studies that are based on Computer-Mediated Communication (CMC). Finally, my own approach to investigating CF has been essentially quantitative, reflecting mainstream CF research. As a result this book does not do full justice to the microgenetic and ethnographic studies of CF

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that have emanated from the work of sociocultural researchers and conversational analysts.

I believe, however, that this book has made a number of contributions to the growing literature on CF. First, it constitutes one of the first attempts to bring together oral and written CF by discussing both commonalities and differences. In so doing, it has presented a common methodology for investigating oral and written CF. Secondly, the book has demonstrated the importance of not treating corrective feedback as a monolithic phenomenon, but as a variable phenomenon that affects learning processes differentially depending on individual learner factors such as language aptitude and anxiety. In this respect, the book offers an important new way of conducting ID-SLA research. To date this has been largely correlational (i.e., researchers have examined the relationship between ID factors and learning outcomes). Arguably, the future of ID research lies in identifying how learner factors influence learning processes. In short, throughout this book, I have attempted to address the two major issues in CF: (1) the theoretical and utility of different types of oral and written CF and their differential effects on second language development and (2) the extent to which these effects may be mediated by individual learners' cognitive and affective factors.

8.2 Corrective Feedback and SLA Research

As shown throughout this book, corrective feedback (CF) is of considerable interest to second language (L2) acquisition researchers, L2 writing researchers and language teachers. CF research has contributed to the study of L2 acquisition and L2 writing in a number of ways.

First, CF research has provided an ideal vehicle for theory testing and building. L2 acquisition (SLA) researchers are concerned to establish whether CF has any role to play in second language (L2) acquisition and if it has, to establish how it can be best implemented to assist acquisition. In so doing, they have tested a number of hypotheses such as the Interaction Hypothesis, the Output Hypothesis and the Noticing Hypothesis. CF research has also led to a new hypothesis – the Counterbalance Hypothesis – and has demonstrated the applicability of constructs drawn from cognitive psychology such as Transfer Appropriate Processing. Much of this research has taken place within an cognitive-interactionist framework but, reflecting current criticisms of this perspective (e.g., Firth and Wagner, 1997, 2007), the scope of CF research has recently widened to include sociocultural and sociocognitive perspectives. Scholars such as Lantolf (2000, 2006), Seedhouse (2004) and Tarone (2000, 2009) have shown that a full understanding of CF and the role that it can play in language acquisition requires a consideration of the social context in which it is enacted.

Second, CF research is of direct relevance to language pedagogy. Indeed, it constitutes an area of enquiry that bridges theory and practice. For example, L2 writing researchers are concerned with whether CF helps L2 writers to both revise their

writing and to demonstrate greater accuracy in subsequent writing. Language teachers are concerned with whether or not to correct their students, which errors to correct, when to correct them and how to correct them (Hendrickson, 1978; Ferris and Hedgcock, 2005). They frequently express uncertainty and unease about corrective feedback and, as research has shown, tend to rely on one particular type of correction (recasts) where the corrective force is masked from the learner (see Seedhouse, 1997). Teacher resource guides offer conflicting views about how teachers should handle CF (e.g., Edge, 1989; Harmer, 1983, 2007, 2008; Ur, 1996). CF research provides an evidence base that can help teachers to make informed decisions about these issues. I will consider the pedagogical implications of CF research more fully in a later section of this chapter.

Third, the study of CF has led researchers to examine how best to investigate it and has resulted in a number of methodological innovations. Earlier studies of CF were mainly descriptive, documenting the different types of CF that arise in native and non-native interaction and in the language classroom (e.g., Chaudron, 1977). Many of the later studies of CF were experimental in design (e.g., Lyster, 2004) involving pretests prior to CF treatment, followed by immediate and delayed posttests (typically 2–4 weeks later). Mackey and Gass's (2006) special issue in the *Study of Second Language Acquisition* provided a collection of papers that showcased the methodology of interaction research including studies of CF. One way in which CF methodology has advanced in recent years concerns the investigation of learner perceptions and noticing of feedback, using methods such as stimulated recall (see Gass and Mackey, 2000) and think-aloud (see Bowles and Leow, 2005). Another methodological advance is evident in the use of multiple tests of acquisition in the attempt to establish whether CF results in implicit knowledge as well as explicit knowledge. Ellis and his colleagues (R. Ellis, 2005; Ellis et al., 2009; Loewen and Nabei, 2007) have shown the importance of developing separate measures of these two types of knowledge in order to examine CF effects more closely. Innovative approaches for investigating CF can also be found in sociocultural and sociolinguistic-oriented CF research as demonstrated in Poehner (2008) and Seedhouse (2004) (see relevant sections in Chapters 2 and 4).

Fourth, following Norris and Ortega's (2000) meta-analysis of studies of form-focused instruction, a number of meta-analyses of CF studies have been published. In their seminal paper, Norris and Ortega used a measure of effect-size (Cohen's '*d*') to undertake an analysis of 39 studies that had investigated the effect that form-focused instruction had on acquisition. Subsequently, they edited a collection of meta-analyses (Norris and Ortega, 2006), including one of CF studies (Russell and Spada, 2006). Further meta-analyses of CF research have followed (Li, 2010; Lyster and Saito, 2010). Table 8.1 provides a summary of these various meta-analyses of CF studies. All of them show that CF has a substantial effect on L2 learning. However, the findings regarding the various factors that mediate the effect that CF has are mixed. In part this reflects the fact that there are still insufficient studies that have investigated the different factors to enable a firm conclusion to be reached, pointing to the need for more studies such as the one I reported in Chapter 7.

Table 8.1 A summary of meta-analyses of CF studies

	Studies included	Focus of meta-analysis	Results
Keck et al. (2006)	17 oral interaction studies between 1980 and 2003	Effects of linguistic target feature (grammar vs. lexicon); task types (interaction vs. no/little interaction); and task design features (e.g. information gap vs. no gap)	(a) The mean effect size for task-based interaction was 0.92; (b) No differences in the effect size for the task that focused on grammar or lexicon; (c) Jigsaw tasks produced the effect size of 0.078 and information gap tasks a higher effect size of 0.91; (d) short-term posttests (fewer than 30 days) produced 1.12 while long-term posttests was a much lower effect size of 0.35, and (e) tasks with pushed-output opportunities produced larger effects (d =1.05) than the tasks without them (d = 0.61).
Russell and Spada (2006)	15 oral and written CF studies between 1977 and 2003	Effectiveness of oral and written CF on L2 learning	(a) A mean effect size of 1.16 was found with 10 out of the 15 oral and written CF studies considered large effect sizes; (b) written CF produced bigger effect sizes than oral CF.
Mackey and Goo (2007)	28 oral interaction studies between 1990 and 2006, including a total of 16 published CF studies	The effects of interaction on L2 learning; and their relationship between a number of linguistic and contextual factors	The mean effect size for oral interactions (i.e. recasts, metalinguistic CF and negotiation/clarification requests) was 0.71 for immediate posttest and 1.09 for short-term posttest (X); recasts produced the higher mean effect size, 0.96, negotiation 0.52 and metalinguistic CF.
Li (2010)	33 CF studies published between 1988 and 2007, including 11 unpublished PhD theses	The overall effect of CF on L2 learning; differential effects of different CF types; durability of CF effectiveness; and variables moderating CF effectiveness	– The positive effects of CF across different CF types and timing of learning outcome produced medium effect sizes about 0.6. – Larger effect sizes for CF were found in (a) foreign language contexts than second language contexts; (b) laboratory studies than classroom studies; (c) CF in discrete item practice than in communicative tasks; (d) unpublished PhD theses than published studies; (e) shorter CF treatments (of 50 min or less) than longer treatments; and (f) CF provided by native speakers than language teachers.

Table 8.1 (continued)

	Studies included	Focus of meta-analysis	Results
Lyster and Saito (2010)	15 classroom-based CF studies between 1980 and 2009	Effectiveness of CF on target language development in L2 classroom settings; and factors influencing CF effects (i.e. CF types, outcome measure, second vs. foreign instructional settings, length of CF treatment and age)	– The analyses revealed medium-to-large effects on L2 development with a mean effect size of 0.74. – Larger effects sizes were found for (a) recasts than prompts; (b) longer treatment than shorter treatments; and (c) younger learners than older learners in the case of prompts. – However, there were no significant differences in effect sizes for second or foreign language contexts nor in the effects of recasts for younger and older learners.

Lastly, CF has been one of the most controversial and hotly debated topics in the L2 writing literature, with both researchers and teacher educators voicing strong claims and counter-claims about the theoretical and pedagogical utility of written CF. The oft-cited claim by Truscott (1996, 1999, 2007) that written CF is ineffective in helping learners develop greater accuracy in subsequent pieces of writing posed a challenge to researchers to investigate written CF in methodologically sound studies. A number of these have now been published (see Section 5.4). However, even though the research shows that CF can lead to improved accuracy especially when it is of the focused kind, the debate about the efficacy of written CF is far from over. Clearly, this is an area in need of further research, as to date the research has only investigated the effects of written CF on a very small number of 'treatable' grammatical features.

8.3 A Summary of the Main Findings

What, then, have we learned from the CF research? Below is a summary of the main findings, based on the research I have reviewed in this book. These findings constitute a tentative 'state-of-the-art' account of what the research has shown us.

1. L2 learners do want to have their errors corrected whether it is in writing or speech, but their preferences regarding implicit/explicit or indirect/direct types of CF may vary depending on their beliefs and cultural orientations (e.g., Leki, 1991; Goldstein, 2006; Yoshida, 2008).
2. Corrective feedback, as a type of negative evidence provided to learners, occurs naturally in both conversational and instructional settings but is more evident in the latter.
3. There are now established taxonomies of oral and written CF types that are available for both SLA researchers and language teachers (e.g., Lyster and Ranta, 1997; Ellis, 2009). These provide a basis for the systematic study of how to research or conduct CF.
4. The most commonly occurring oral CF type is recasts (e.g., Lyster, 1998a; Sheen, 2004; Lyster and Mori, 2006).
5. There is now an agreement among cognitive-interactionist researchers that oral CF brings about positive changes in second language development. These changes are evident in both laboratory and classroom settings (e.g., Mackey and Goo, 2007; Lyster and Saito, 2010). However, there is less agreement about the value of written corrective feedback in improving L2 writers' overall texts (e.g., Truscott, 2007) although there is a growing body of evidence to suggest that focused written CF can enhance linguistic accuracy (e.g., Sheen et al., 2009).
6. Researchers have found that in some cases, there are mismatches between (1) teachers' own beliefs about CF and their own practices (e.g., Basturkmen et al., 2004; Lee, 2009) and (2) teachers' intention to correct and learners' perception of the move as corrective (e.g., Kim and Han, 2007).

7. While CF in general facilitates L2 learning, different types of CF have been found to have a differential effect. For example, explicit CF such as metalinguistic clues and output-prompting CF types, such as elicitations and clarification requests, appear to have a greater effect than implicit and input-providing CF (i.e. recasts), especially in classrooms that are primarily meaning-focused as in immersion or content-based instructional programmes. What appears to be essential is that learners identify the corrective force of CF. When this does not occur, CF has little effect on learning (Ammar, 2008; Lyster, 2004).
8. The effects of CF have been shown to differ widely depending on the linguistic targets. Thus, we cannot assume that because CF has been shown to assist the acquisition of one grammatical feature it will necessarily do so for all features (e.g., Bitchener et al., 2005; Ellis, 2007; Iwashita, 2003). Research also suggests that CF may have a differential effect depending on whether it is directed at morphosyntactic features, vocabulary or pronunciation (e.g., Lyster, 1998b; Mackey et al., 2000). That is, the effects of CF on learning have been shown to be less strong where morphosyntax is concerned than for other linguistic features (e.g., Li, 2010).
9. In general, CF studies that have reported a facilitative effect on second language development have used tests that are more likely to measure learners' explicit knowledge of linguistic features than their implicit knowledge. Not surprisingly, larger effect sizes have been recorded when the measure taps into learners' careful, conscious language use than into their spontaneous language use (Li, 2010; Lyster and Saito, 2010). However, there is also some evidence to show that CF can help to develop implicit L2 knowledge (e.g., Ellis et al., 2006). In the case of written CF studies, the effect of CF has been measured primarily in terms of the revisions that learners make to their initial draft rather than on a new piece of writing. More recent studies, however, have shown that written CF can lead to higher levels of accuracy in new pieces of writing.
10. Individual learner factors such as working memory and analytic language ability have increasingly figured in the CF literature, suggesting a link between learners' cognitive capacity, their noticing of corrections and subsequent learning (e.g., Mackey et al., 2002; Trofimovich et al., 2007).
11. While CF has been an intense object of inquiry by researchers who draw on the Interaction Approach (see Section 2.3) and information processing models (e.g., DeKeyser, 2007a, 2007b; Mackey and Gass, 2006; Lyster, 2007), there have also been attempts to examine CF from the theoretical perspectives afforded by sociocultural theory, conversational analysis and sociolinguistics (e.g., Aljaafreh and Lantolf, 1994; Bigelow et al., 2006; Hyland and Hyland, 2006; Seedhouse, 2004; Waring, 2008).
12. CF is a highly complex phenomenon. While there is obvious merit in investigating it as a holistic phenomenon, much can also be gained by investigating it more atomistically. Ellis (2010b) presents a framework that identifies a number of different aspects of CF and suggests how this can be used to develop a research program. The five components in this framework are (1) oral/written CF, (2) individual difference factors, (3) contextual factors,

(4) learner engagement, and (5) learning outcomes. While each of these can be investigated separately, Ellis' model points to the importance of considering the inter-relatedness of the different components in order, for example, to examine how individual differences and contextual factors interact to influence learners' engagement with oral and written CF and how this, in turn, affects learning outcome.

8.4 Pedagogical Implications

Research on CF has obvious pedagogical implications as teachers want to know how they should handle learner errors. This section begins with a discussion about what teachers need to know about error correction. I will first present a number of pedagogical recommendations gleaned from CF research findings to date. I will then discuss what methodologists have suggested teachers should do when correcting learner errors and examine whether this matches with the findings of CF research. Finally, I will discuss ways in which CF research can be made relevant to language teachers so that they can develop a better understanding of how error correction works. In doing so, I will consider some recent evidence that suggests that teacher education about error correction does impact on actual practice.

8.4.1 What Language Teachers Need to Know About Error Correction

In Chapters 2 through 5, I treated oral and written CF error correction separately as they differ in both theoretical and pedagogical ways. In this section, I will first discuss pedagogical implications for oral error correction followed by some suggestions for written error correction.

In the case of oral correction, research has consistently shown that recasts are by far the most frequent corrective feedback strategy in the classroom (e.g., Lyster and Ranta, 1997; Ellis et al., 2001; Panova and Lyster, 2002; Sheen, 2004). However, the efficacy of recasts has been questioned because learners may fail to notice their corrective force, especially in the context of communicative tasks. Thus, there is a need for language teachers to find ways to enhance recasts to induce learner noticing – for example by emphatic stress, linguistic signals, gestures or raising the learners' consciousness about the role of recasts. However, such enhancement might not be easy to achieve. For example, teachers normally do not emphasize the English articles, 'a' and 'the' in their recasts, especially in conversational exchanges that arise in communicative activities. Therefore, recasts are probably not the best candidate for promoting acquisition, especially when they are used to negotiate meaning (as opposed to negotiating form).

Han and Kim (2008), drawing on a database from a number of English as Foreign Language (EFL) classrooms, offered 5 specific strategies to maximize the efficacy

of recasts by (1) cultivating metalinguistic sensitivity (i.e., making students aware of the difference between didactic and communicative recasts); (2) keeping a narrow focus (i.e., targeting just one linguistic error at a time); (3) negotiating recasts (i.e., ensuring that the reformulated utterance is congruent with the learner's intended meaning); (4) promoting self-negotiation (i.e., prompting students to self-correct before providing a didactic recast); and (5) looking for teachable moments (i.e., providing recasts as brief time-outs to draw students' attention to form while the primary focus is still on meaning).

Teachers should also note that metalinguistic CF, even when provided in very brief time-outs from communication, can be very effective. For example, to assist the development of grammatical accuracy, teachers can provide direct metalinguistic correction (i.e., a metalinguistic comment accompanied by the correct form). While oral recasts may only prove effective if they are used intensively over a period of time, metalinguistic feedback has been shown to work for acquisition within a relatively short period of time (i.e., a single lesson). Teachers may be wary of using metalinguistic feedback, fearing that it will disturb the communicative flow of a lesson. However, this need not be the case. A brief metalinguistic comment is likely to be noticed by the learners but need not unduly detract from the primary focus on meaning.

Sheen and Ellis (2011), based on their understanding of the current CF research, offers a number of CF guidelines for language teachers:

1. Teachers should keep in mind their learners' learning goals and attitudes towards correction and communicate with them about the acquisitional value of correction.
2. Teachers should provide error correction in both accuracy and fluency work.
3. Teachers should make full use of focused correction (i.e., they should direct their corrections at specific linguistic features).
4. Teachers should be aware of the variety of correction strategies available to them and be prepared to tailor them to meet the needs of individual learners.
5. In accordance with sociocultural theory (e.g., Aljaafreh and Lantolf, 1994) teachers should attempt to correct learner errors by using the most implicit form of correction that will enable the learners to self-correct. In this way, learners can be assisted in self-regulating.
6. As much as possible, teachers should take into account learners' levels of anxiety and their developmental level.

The guidelines offered by methodologists such as Harmer (2007) and Folse (2009), however, often do not match with the aforementioned recommendations by SLA researchers. For example, Harmer (2007, 2008) advises that teachers do not provide correction during fluency activities. He notes, 'during communicative activities, however, it is generally felt that teachers should not interrupt students in mid-flow to point out grammatical, lexical or pronunciation errors, since to do so interrupts the communication and drags an activity back to the study of language form or precise meaning' (p. 143).

Folse (2009) makes a similar suggestion. He notes 'when you correct someone who is speaking . . . at best your correction will not be noticed by the [L2 learners]; at worst, your correction will stop communication (p. 311)'. However, according to the oral CF research literature reviewed in Section 4.2, correction is most effective if it is provided 'on line' at the very moment that the learner is attempting to convey semantic and pragmatic meaning. 'Focus-on-form' (which includes corrective feedback) benefits learners precisely because their attention is drawn to form while they are focusing on meaning. This is one of the main ways in which learners achieve form-function mapping. How should teachers take these mixed messages from experts? I will come back to this in the next section where CF research and teacher education are discussed.

I will now consider some applications for L2 writing pedagogy. While controversy surrounding written CF continues to exist, a number of recent written CF studies point to the pedagogical utility of focused written correction in promoting L2 learning. A number of researchers (e.g., Bitchener, 2008; Ellis et al., 2008; Sheen, 2007a; Sheen et al., 2009) have recently argued that teachers need to consider ways in which they can provide *focused* CF. They have suggested that this can be achieved by (1) identifying specific grammatical problems that their students have; (2) focusing on one problem at a time, using metalinguistic CF as this has been shown to most likely produce a positive change; and (3) selecting different problems to address in different lessons so that over time they address a wide variety of linguistic problems. Teachers need to recognize that the benefits of focused correction are cumulative as different linguistic problems are systematically addressed. This approach constitutes an alternative to the traditional, unfocused approach to correcting errors in students' writing.

Then, to what extent do these proposals for written corrective feedback match the recommendations made by language teaching methodologists? In most cases, teacher educators/trainers have considered the role of written grammar correction in relation to feedback on writing in general. This is because feedback on writing involves much more than just correcting learners' linguistic errors. Lee (2011), drawing on her experience of teaching writing in Hong Kong, proposes a general set of practices for providing feedback by contrasting what she calls 'innovative feedback practices' and 'conventional feedback practices' (see Table 8.2). Although Lee suggests her innovative feedback principles are based on L2 writing research, they do not correspond closely to the written CF research findings to date. For example, one of Lee's new proposals is that teachers should avoid direct correction of written errors as much as possible, but this is not supported by the written CF research mentioned earlier. Also, just as correcting errors comprehensively (seen by Lee as 'conventional') can be thought of as impractical in some contexts, so too are conferences and/or requiring multiple drafts (seen by Lee as 'innovative'). The problem with this kind of general characterization of feedback practices is that it does not take into account the local contexts in which teachers work.

Lee's proposal that teachers should mark errors selectively is echoed in the proposals emanating from language teaching methodologists. Harmer (2007, 2008) cautions against over-correction of learners' written texts. He points to the

Table 8.2 Conventional feedback vs. innovative feedback (adapted from Lee, 2011)

Conventional feedback practices	Innovative feedback practices
1. Teachers focus predominantly on the language form in responding to student writing. 2. Teachers require single drafts from students. 3. Teacher correct errors comprehensively (i.e. they mark all errors). 4. The most common error feedback techniques they adopt are direct feedback (i.e., providing correct answers for students) and coded feedback (i.e., using error codes like 'T' for 'tense'). 5. Some teachers tend to use a large number of error codes. 6. Teachers grade their students' compositions. 7. Teachers use broad assessment criteria such as content, language, and organization in marking student writing. 8. Teachers rarely utilize self-/peer evaluation and conferencing. 9. Teachers believe that writing assessment has little impact on teaching and learning.	1. Teachers should mark errors selectively. 2. Teachers should provide correct answers for students only when necessary. 3. Teachers should use error codes sparingly. 4. Teachers should not grade their students' writing. 5. Teachers should use task/genre-specific criteria. 6. Teachers should familiarize their students with task/genre-specific criteria before they begin writing. 7. Teachers should require students to conduct self-evaluation of their writing. 8. Teachers should invite students to carry out peer evaluation. 9. Teachers should hold conferences with students. 10. Teachers should require their students to write more than one draft.

importance of ensuring that students are made aware of the teacher's selective approach to correction (i.e., they need to understand that the teacher will focus selectively on particular aspects of language or writing). Folse (2009) advises that teachers adopt differing approaches to correcting errors for different writing purposes. For example, teachers should not correct errors on students' journals whereas they should on essays. As for how teachers should correct, Harmer recommends the use of systematic error coding. Folse avoids the whole issue of how to correct L2 learners' written texts by simply suggesting that they should go with whatever they feel most comfortable with and think will work best for their students. One reason he gave for this recommendation is that the L2 writing research had failed to show that one way of correcting written errors was any more effective than another. However, he does recommend that if students express a wish for their errors to be corrected, teachers should focus on just one or two main errors at a time.

While there seems to be consensus among both researchers and methodologists about the value of focused correction, conflicting views exist as to what teachers should and should not do with written errors. There are a number of possible explanations for this. For example, there is a generally held conviction derived from the process writing paradigm that the main emphasis of written feedback should be placed on content and organization rather than on linguistic accuracy. There is also a strong belief that correcting grammar errors does not contribute to long-term gains in accuracy or to improvement on writing in general (e.g., Truscott, 2007). So corrective feedback is viewed with suspicion in some quarters.

The position I have adopted in this book is that corrective feedback is worthwhile, as it can assist acquisition and that this is equally true of oral and written CF. Indeed, I would argue that the theoretical case for treating oral and written errors in similar ways is now very strong. My own CF research findings presented in this book (see Section 6.3.4) show that explicit feedback (e.g., providing the correct form and/or metalinguistic information) which targets adult ESL learner errors concerning English articles works best for acquisition in both oral and written forms. This suggests that explicit CF may be the most effective way of correcting learner errors, but clearly this will need to be demonstrated for different grammatical structures and in different instructional context.

There is in fact an obvious danger in recommending that teachers adopt a single correction strategy. Learners are not all the same. They differ in terms of learner background, goal/purpose, language analytic ability, personal preferences, attitude towards CF, and the degree to which they experience speaking and writing anxiety. These learner differences are bound to impact the efficacy of both oral and written correction.

How, then, can teachers take account of individual differences in their choice of corrective feedback strategies? Clearly, this is a difficult issue. Although these variables have been shown to explain why CF is more effective for some learners than others, it is not an easy task for teachers to adapt their CF to take account of these factors. In most classroom situations, it is not feasible for teachers to profile individual students by administering questionnaires or tests. However, a good teacher (as a good communicator in the classroom) should be sensitive to her students and adjust her communication style and feedback strategies to suit her students. Thus, over time a good teacher can be expected automatically and intuitively to adjust her CF to suit the individual learners in her class. But what of newer teachers or those who do not possess this natural ability? One possibility is that teachers should attempt to train learners to recognize the value of both implicit and explicit CF (in the case of oral correction) and focused written correction. Perhaps teachers should 'sell' CF to their students; that is, they should explain in advance the function and usefulness of different types of CF in order to help students see when they are being corrected (especially in the case of oral recasts) and to also see why they are sometimes NOT being corrected (in the case of focused written correction). They also need to ensure that all students have a positive attitude towards CF and a clear understanding of how they will handle learner errors. Additonally, teachers should make sure that CF (especially in the case of metalinguistic correction in oral or written form) is presented in a friendly, non-threatening manner, accompanied where appropriate by praise and encouragement, to reduce the potential negative attitudinal impact on the students.

There is also another way for teachers to take learners' individual differences into consideration. CF research based on sociocultural theory claims that the most effective form of CF is the least explicit form required to assist the learner to self-repair his or her errors (Aljaafreh and Lantolf, 1994). From this perspective, then, teachers need to *tailor* the type of CF to the learners' developmental level in order to help learners to develop self-regulation (autonomy). In other words, it is not possible

to argue that one type of CF is more effective than another as the value of different types of feedback is entirely relative to the learner's stage of development. However, in my opinion, this line of argument is of limited pedagogical applicability as it is only possible to fine-tune the CF to the learner's stage of development in one-on-one interactions (as in Aljaafreh and Lantolf's study). Clearly, this is not possible in many teaching contexts and is certainly not possible in written CF where there is no opportunity to 'negotiate' gradually along the Zone of Proximal Development (ZPD). This being the case, I would argue that explicit CF is the better option, as it will prove effective irrespective of the learners' developmental level and is easy to implement in a whole-class context.

8.5 Making Corrective Feedback Research Relevant for Language Teachers

One of the key challenges SLA has faced over the years is how to make research findings relevant to language teachers. A recent discussion on this topic can be found in a forum published in *TESOL Quarterly,* 2007 where a number of SLA researchers and teacher educators debated the extent to which SLA research findings should be applied directly to the language classroom. Whereas Han (2007) expressed doubts about including an 'implications section' in a research article, Chapelle argued forcibly the need for such a section in articles published in journals like *TESOL Quarterly*.

The articles in the forum demonstrate the uncertainty that exists among researchers and teacher educators regarding the relevance of research to language pedagogy. Ellis (1997, 2008) articulated a number of different positions regarding the relationship between SLA and language pedagogy. According to a strict positivist view, researchers do the research and then inform teachers how they should teach. Another position acknowledges the limitations of the research and therefore advises teachers to apply only with great caution. A third position – the one Ellis favors in many of his own publications – is that research findings should be treated as 'provisional specifications' that teachers need to experiment with in their own classrooms. A fourth possibility is to encourage teachers to engage in research themselves, either in collaboration with a trained researcher, or independently through action-research.

In an attempt to show how SLA findings can influence teaching, Ellis (2010c) proposes a framework that connects four actors (i.e., SLA researchers, classroom researchers, teacher educators and teachers) in a symbiotic way. He argues that teacher educators play a crucial mediating role, helping teachers to evaluate the relevance of research in their teaching. He went on to illustrate this mediating role by discussing how research on corrective feedback could be used to develop a unit in a teacher education program. This unit made use of the CF research in a number of ways – by providing teachers with CF research articles that were carefully selected for relevance and for readability; by encouraging teachers to evaluate a set of research-based propositions about CF in terms of their experience

as teachers and learners; by raising their awareness of the complex nature of CF through the analysis of actual classroom CF data; and by planning a small scale action research project in order to examine and reflect on their own CF practice. Ellis also argued the need for teacher educators to evaluate the effect of such a unit through surveys/questionnaires/interviews administered before and after the unit.

A concrete example of how to make CF research relevant to language teachers can be found in Ellis (2010d). This course unit for teacher education can be seen in Table 8.3. The unit requires teachers to complete a CF questionnaire before and after reading about and discussing a sample of relevant CF literature. The teachers are then asked to carry out a principled analysis of a number of corrective feedback episodes (see 'awareness-raising task' in the table). Ellis suggests that such a unit can be used to (1) to instigate and guide debate on CF, (2) to help teachers see how their ideas about CF reflect their overall teaching philosophy and thus to assist them to review this critically, and (3) to encourage teachers to identify specific strategies for conducting CF that accord with their revised philosophy.

Table 8.3 Outline of a unit on corrective feedback as part of an SLA course for teachers (Taken from Ellis, 2010d, p. 12)

Topic	Oral corrective feedback in the classroom
Aim	To assist the teachers to examine their own beliefs about oral CF and to develop an explicit theory of CF relevant to their own teaching contexts
Questionnaire	The teachers complete a questionnaire on CF. The purpose of this is to enable them to state their own beliefs about CF. A secondary purpose is to provide a basis for a final evaluation of the unit by asking the students to complete it a second time after completing the unit.
Text	Lightbown and Spada (2006) – students read pp. x to x as a preliminary to work on the topic.
Research articles	(1) Sheen (2004) The teachers read the article and answer a number of questions designed to help them identify key constructs (such as the types of CF and 'uptake') and consider why CF varies from one instructional context to another. (2) Nobuyoshi and Ellis (1993) Hopkins and Nettle (1994) The teachers read the two articles and evaluate the arguments presented in relation to their own classroom.
Evaluating 'ideas' about CF	The teachers are presented with guidelines about how to conduct CF in the form of a set of 'ideas' about CF. Each idea is discussed and the teachers are invited to agree, disagree with it or modify it. Examples of the 'ideas': 1. Teachers should ascertain their students' attitudes towards CF, appraise them of the value of CF, and negotiate agreed goals for CF with them. The goals are likely to vary according to the social and situational context. 2. CF works and so teachers should not be afraid to correct students' errors. This is true for both accuracy and fluency work so CF has a place in both 3. Teachers should ensure that learners know they are being corrected (i.e. they should not attempt to hide the corrective force of their CF moves from the learners) (See Ellis 2009).

Table 8.3 (continued)

Topic	Oral corrective feedback in the classroom
Awareness-raising task	The teachers are given a number of corrective feedback episodes taken from a communicative language lesson for young adults and are asked to discuss each episode in terms of whether teacher and student appear to have shared goals in each episode, whether the students show awareness they are being corrected, whether the teacher is able to adapt the CF strategies she employs to the needs of the students, whether the students uptake the correction, whether the teacher allows time for this to happen, and whether the students appear anxious or negatively disposed to the correction. They then assess the overall effectiveness of each CF episode. Example of CF episode: S: I have an ali[bi] T: you have what? S: an ali[bi] T: an alib-? (.2.) An alib[ay] S: ali [bay] T: okay, listen, listen, alibi
Research project	Teachers are asked to work in groups to plan a small action research project for investigating an aspect of CF of their own choice. They are encouraged to reflect on their own practice as well as researching the literature on CF in order to identify an aspect to investigate
Evaluation	The teachers complete the questionnaire a second time. The teacher collects the questionnaires and compares the teachers' responses with their initial responses. Students are shown their initial and final questionnaire and invited to examine whether and how their beliefs about CF have changed. Finally, the students are asked to identify any issues about CF about which they remain uncertain or would like to learn more.

In a similar vein, Vásquez and Harvey (2010) sought to raise teachers' awareness about CF by asking them to replicate a classroom CF study – an excellent example of the kind of mediation that Ellis (2010c) was talking about. Vásquez and Harvey chose CF as the SLA topic to be investigated because their student teachers commented that they found correcting students' errors problematic and were eager to learn more about CF. Vásquez and Harvey set out to explore what effect their students' action research had on their beliefs and opinions about CF. Nine graduate students enrolled in an MA level SLA course conducted a partial replication of Lyster and Ranta's (1997) study in their own classroom setting. Vásquez and Harvey (2010) reported that there was a shift in the teachers' beliefs as a result of conducting the study. Whereas initially they expressed more concern about the affective aspect of CF, they subsequently formed a deeper understanding of the role and function of different types of CF and their relationship with learner uptake. This understanding was also shown to have an impact on their own teaching. Below are some excerpts from two teachers' self-reports:

> I used to believe that error correction can be discouraging, useless, and even detrimental during the communicative activities. However, I now think that I should consider developing systematic error correction strategies for the common student errors.

> Previously, I would correct her with either recasts or metalinguistic explanation, but now I try to get her to correct herself by asking her questions to see if she is aware of the gap. (Vásquez and Harvey, 2010, p. 433)

What Vásquez and Harvey's (2010) study shows is the importance of not just asking teachers to consume research but to participate in it. Such participation fosters a critical and deeper reflection on practice, which surely is the primary aim of research directed at teachers.

This section has considered the role of corrective feedback research in language pedagogy by addressing the following questions: (1) What do language teachers need to know about error correction?; (2) What approach to CF is likely to be most effective?; and (3) How can teacher educators assist teachers to work out an explicit policy for conducting oral and written CF?

We have seen that there exists a gap between the pedagogical implications gleaned from SLA findings and the explicit recommendations made by language teaching methodologists. This is due to the complex nature of CF. The success of CF depends on a myriad of cognitive, sociocultural, discoursal and internal and external learner factors that mediate the effectiveness of any particular CF type. On the basis of my own research findings I have suggested that teachers' best bet is to opt for explicit and direct CF rather than implicit and indirect. I am aware, however, that this might not be the best option for every instructional context. What is really important is that teachers weigh the various options, experiment with them and decide which works best for them in their own teaching context. To illustrate how a teacher education program can help teachers to develop their own policy for error correction, I presented Ellis' (2010d) concrete example of a unit designed to develop teachers' keen awareness of pros and cons of a variety of CF strategies. Ultimately, the research on CF should not be used to prescribe how to do CF but to raise awareness of the options available and to encourage teachers to reflect on these. This is what I hope I have been able to do in this book.

8.6 Final Comments

Interest in oral and written CF continues to grow as can be seen in the articles in Sheen and Lyster's (2010) special issue on oral and written CF in *Studies in Second Language Acquisition*. These articles demonstrate both the increased rigor now evident in CF studies and the plurality of theoretical perspectives that now inform CF research. It also highlights the importance of examining CF in relation to language pedagogy (e.g., Ferris, 2010; Lyster and Saito, 2010), given that CF is one aspect of language teaching that teachers have to deal with on a daily basis. To repeat an earlier statement – CF is a highly complex phenomenon. To understand it is necessary to take into account multiple factors including feedback type, error type, interaction type, mode (oral/written/computer-mediated), the L2 instructional context, the learners' age, gender, proficiency, first language (L1), anxiety, literacy and cognitive

abilities, and how the learner orientates to the correction. In short, the study of CF constitutes an arena for studying the issues that figure in SLA – and in language pedagogy – more broadly. Because CF is of interest to both researchers and teachers it constitutes an obvious object of inquiry for researcher-teacher collaboration. CF connects theory, research and practice as I have demonstrated throughout this book.

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