17

Corrective Feedback and the Development of Second Language Grammar

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Background

The development of grammar is recognized to be central in learning a second language (L2). Grammar is arguably the linguistic system that has received the most attention by researchers in second language acquisition (SLA). Loewen (2012) notes that much corrective feedback (CF) inquiry has focused on grammatical structures with English question formation and past tense being particularly popular topics. Grammar is also often prioritized in the L2 classroom. Many teachers and learners see grammar as being "at the heart of language use" and the view that language learning is essentially a process of accumulating discrete grammatical items often prevails (Thornbury, 2018, p. 183). There is thus a substantial "coincidence of interest" in grammar between researchers and practicing teachers (Bygate, 1994, p. 257). Corrective feedback in particular is an aspect of grammar teaching where the interests of teachers and researchers coincide (Ellis & Shintani, 2014).

CF can contribute to learning by being a source of positive and negative evidence. Reformulations, such as recasts and explicit correction, provide information regarding the ungrammaticality of learners' utterances (negative evidence that the utterances do not conform to target language norms) and positive evidence which provides the correct forms. Prompts, such as clarification requests and elicitations provide negative evidence only. They signal to learners that something they said does not conform to target language norms and needs modification. CF thus contrasts with other

types of instructional input which generally provides positive evidence alone (Ellis & Shintani, 2014).

In this chapter, the term CF is used to refer to responses to learners' utterances that contain actual or perceived errors and the term errors to refer to nontarget-like utterances (Mackey, Park & Tagarelli, 2016). The chapter examines literature that has investigated the effectiveness of the kinds of oral CF typically provided by teachers as measured in oral and/or written tests. The following fundamental questions for the CF research agenda are listed in Mackey et al. (2016, p. 499):

1. Should learner errors be corrected?
2. If so, when should learners' errors be corrected?
3. Which learner errors should be corrected?
4. How should learner errors be corrected?
5. Who should correct learner errors?

The chapter reviews recent research that provides insights linking in particular to questions 1, 2, 3, and 4 in relation to the development of grammar, that is, the learning of morphological and syntactic forms (structures) and form–meaning mappings (Thornbury, 2018). Where possible, we suggest implications for teachers based on cumulative evidence from this body of literature. Although the topic of individual differences is not central to the present review (see reviews of this topic in Part VIII of the present volume), some discussion of proficiency factors is included in our examination of research into the effectiveness of oral CF strategies on the development of grammar.

Descriptive studies have provided taxonomies of the oral error correction strategies teachers use (Chaudron, 1977; Lyster & Ranta, 1997, Ranta & Lyster, 2007). For example, Lyster and Ranta (1997) proposed a six-part taxonomy of CF strategies (see Table 17.1) based on observations of over 18 hours of classroom transcripts.

In a later work, Ranta and Lyster (2007) grouped the strategies, combining recasts and explicit correction in one group named reformulation and the rest (repetition, elicitation, clarification requests, and metalinguistic feedback) in a second group of strategies called prompts. Prompts are also known as output-prompting strategies because the teacher/researcher withholds target forms and encourages learners to correct themselves. Reformulations are defined as input-providing strategies because the teacher/researcher replaces learners' errors with correct forms.

In addition to the distinction between input-providing and output-prompting functions, Ellis (2012) pointed out that CF strategies can be classified according to how obvious they appear as a form of correction. An explicit strategy is the one where the teacher/researcher overtly indicates that the learner has made an error (e.g., *You should say "I played basketball yesterday."*) and an implicit strategy is the one where the teacher/researcher treats an error but in less obvious manner. (e.g., *Pardon?*).

Table 17.1 *Taxonomy of CF strategies based on Lyster and Ranta (1997)*

Strategy	Definition	Example
Explicit	The teacher points out an error directly and provides the correct form.	S: I play basketball yesterday. T: You should say "I played basketball yesterday."
Recast	The teacher reformulates part or all of the initial incorrect utterance.	S: I play basketball yesterday. T: I played.
Clarification request	The teacher indicates that there has been a mistake or misunderstanding.	S: I play basketball yesterday. T: Pardon?
Elicitation	The teacher endeavors to elicit correct forms by pausing before the initial erroneous word or asking students to reformulate their utterances.	S: I play basketball yesterday. T: I . . . (pause) basketball yesterday.
Repetition	The teacher repeats the erroneous part.	S: I play basketball yesterday. T: Play?
Metalinguistic feedback move	The teacher indicates there is an error in learner's utterance using comments, questions, or metalinguistic knowledge of the error but does not provide the correct form.	S: I play basketball yesterday. T: Present tense or past tense? (Or) It should be past tense.

Table 17.2 *Classification of CF strategies*

	Explicit	Implicit
Output-prompting	Metalinguistic clue Elicitation	Repetition Clarification requests
Input-providing	Explicit correction only	Recasts

Note. This table is adapted from Ellis (2012).

According to Ellis (2012), explicit correction, metalinguistic clues, and elicitation are explicit and recasts, repetition, and clarification requests are implicit. For a review of explicit and implicit feedback, see also Chapter 16. Given input-providing and output-prompting CF types show various explicitness, the two dimensions of CF (see Table 17.2) intertwine with each other.

CF Strategies and Measures of L2 Grammatical Development: Should Errors Be Corrected and, If So, How?

A major area of experimental research concerns the relationship between the different types of CF strategies and grammar learning outcomes. Within this area, many studies have compared the differential effects of output-prompting CF strategies especially prompts (a combination of

repetition, clarification requests, metalinguistic clues and elicitation) with input-providing CF strategies, particularly recasts (Ammar, 2008; Ammar & Spada, 2006; Guchte et al., 2015; Loewen & Nabei, 2007; Lyster, 2004; Lyster & Izquierdo, 2009; Nassaji, 2009; Sato & Lyster, 2012; Yang & Lyster, 2010). A few studies (Ellis, 2007; Ellis, Loewen & Erlam, 2006; Goo, 2012; Li, 2014; Loewen & Nabei, 2007; Nassaji, 2009; Sheen, 2007; Yilmaz, 2012) have compared the differential effects of explicit CF (e.g., metalinguistic correction) with implicit CF (e.g., recasts). Some studies (Hawkes & Nassaji, 2016; Li, Zhu & Ellis, 2016; Nassaji, 2017; Quinn, 2014; Yilmaz & Yuksel, 2011; Zhao, 2015) have focused on the effects of recasts which are the most frequent feedback type in classrooms (Lyster & Ranta, 1997). These recasts studies have compared (1) the effects of recasts with no feedback (Hawkes & Nassaji, 2016), (2) the effects of recasts delivered through different communication modes, face-to-face or computer-mediated (Yilmaz & Yuksel, 2011), (3) the effects of recasts on correcting different types of errors such as intensive recasts focusing on errors of a specific target structure and extensive recasts focusing on any errors that emerged incidentally during CF treatment (Nassaji, 2017), (4) the effects of different types of recasts such as explicit recasts (i.e., corrective recasts) involving two feedback moves (first drawing learners' attention to errors through repeating their erroneous utterances with emphasis and then using a recast) and implicit recasts which only include one recast move (Zhao, 2015), and (5) the effects of recasts provided under different timing conditions (Fu, 2019; Li et al., 2016; Quinn, 2014).

Although the studies above investigated different CF strategies, they are all concerned with assessing the effectiveness of the CF strategies in developing learners' grammatical accuracy. For example, Lyster (2004) examined the differential effects of prompts and recasts on the acquisition of French grammatical gender when form-focused instruction was provided. The form-focused instruction (FFI) drew learners' attention to the target structure and asked them to complete some practice activities. The participants were divided into four groups, a recasts+FFI group who received FFI and recasts on their gender errors, a prompts+FFI group who received FFI and prompts on their gender errors, a FFI only group who received FFI but were not provided with any CF, and a control group who did not receive FFI or CF. The four groups' accuracy of using French grammatical gender was measured before (pre-test) and after (post-test) CF treatment. Each pre-or post-test was composed of four tests, two written tests and two oral tests. After comparing the three experimental groups' (recasts+FFI, prompts+FFI, and FFI only) accuracy scores with the control group's scores on the post-tests, it was found that (1) the three experimental groups all outperformed the control group, (2) the prompts+FFI group outperformed the recasts+FFI and FFI only group, and (3) the difference between the recasts+FFI group and the FFI only group was marginal.

Following Lyster (2004), many other studies (Ammar & Spada, 2006; Ellis, 2007; Ellis et al., 2006; Fu, 2019; Goo, 2012; Guchte et al., 2015; Hawkes & Nassaji, 2016; Li, 2014; Li et al., 2016; Loewen & Nabei, 2007; Lyster & Izquierdo, 2009; Nassaji, 2009, 2017; Quinn, 2014; Sato & Lyster, 2012; Sheen, 2007; Yang & Lyster, 2010; Yilmaz, 2012; Yilmaz & Yuksel, 2011; Zhao, 2015) examined the effectiveness of different CF types by measuring learners' grammatical accuracy on written and/or oral tests. Although some studies only used one type of test to measure the efficacy of CF, either written (Goo, 2012; Nassaji, 2009) or oral tests (Sato & Lyster, 2012; Yilmaz & Yuksel, 2011), most studies have used both types of tests (Ammar & Spada, 2006; Ellis, 2007; Ellis et al., 2006; Fu, 2019; Guchte et al., 2015; Hawkes & Nassaji, 2016; Li, 2014; Li et al., 2016; Loewen & Nabei, 2007; Lyster, 2004; Lyster & Izquierdo, 2009; Nassaji, 2017; Quinn, 2014; Sheen, 2007; Yang & Lyster, 2010; Yilmaz, 2012; Zhao, 2015). It is important to note that written and oral tests tend to tap into different types of knowledge. In written tests, learners have opportunities to monitor their production and thus such tests are commonly used to measure explicit knowledge, the type of knowledge that the learner is aware of having and can explain (Basturkmen, 2017; Ellis, 2005). In contrast, in oral tests learners are usually required to use the language spontaneously, and thus such tests are most often used to measure implicit knowledge, tacit knowledge, or the type of knowledge that learners use without awareness and may not be able to explain (Ellis, 2005).

Various types of written tests have been used in the CF literature. Grammaticality judgment tests are the most frequently used type of written tests. These tests require learners to judge the correctness of a set of sentences with/without error correction (Ellis, 2007; Ellis et al., 2006; Fu, 2019; Goo, 2012; Li, 2014; Li et al., 2016; Loewen & Nabei, 2007; Nassaji, 2017; Zhao, 2015). Moreover, error correction tests require learners to identify and correct errors (Amma & Spada, 2006), such as errors in their writings/utterances (Hawkes & Nassaji, 2016; Nassaji, 2009), or to correct errors directly without judging their correctness (Sheen, 2007). There are also production tests which require learners to write sentences (Goo, 2012) or stories (Nassaji, 2017; Sheen, 2007; Yang & Lyster, 2010; Zhao, 2015), multiple-choice tests (Lyster, 2004; Lyster & Izquierdo, 2009; Yilmaz, 2012), fill-in-the-blank tests (Guchte et al., 2015; Lyster, 2004), and tests of metalinguistic knowledge that ask learners to correct underlined errors and provide reasons for their corrections (Ellis, 2007; Quinn, 2014).

A limited range of oral tests have been used. Some studies have used oral production tests which require learners to describe/compare a set of pictures (Ammar & Spada, 2006; Guchte et al., 2015; Loewen & Nabei, 2007; Lyster, 2004; Lyster & Izquierdo, 2009; Nassaji, 2017; Quinn, 2014; Yilmaz, 2012; Yilmaz & Yuksel, 2011) or to describe items using target structures (Lyster, 2004; Lyster & Izquierdo, 2009). Some studies (Ellis, 2007; Ellis et al., 2006; Fu, 2019; Li, 2014; Li et al., 2016; Zhao, 2015) have used elicited

imitation tests in which sentences, either grammatical or ungrammatical, are presented one after another. After listening to each sentence, learners first judge if the sentence applies to them based on their situations (e.g., *I ate an apple yesterday*) and then repeat the sentence in correct English. Some studies (Yang & Lyster, 2010; Zhao, 2015) have used story-retelling tests to measure learners' oral performance. One study (Hawkes & Nassaji, 2016) used computerized error correction tests which asked learners to listen to their own utterances, judge the grammaticality of them, and correct the erroneous utterances orally. Note that although oral tests are often used to measure the development of learners' implicit knowledge, Ellis (2005) found that written tests can also be used to measure this type of knowledge. When written tests imposed time pressure on learners, such as timed grammaticality judgment tests (Loewen & Nabei, 2007; Quinn, 2014) and speeded dictation (Sheen, 2007), the time constraints compelled learners to draw on their tactic implicit knowledge instead of conscious explicit knowledge to complete the tests.

In order to understand the overall relationship between CF and the development of L2 grammatical accuracy, Russell and Spada (2006) and Lyster and Saito (2010) synthesized the results reported from empirical studies that investigated the effects of different CF types on promoting L2 grammatical accuracy. Russell and Spada (2006) found that oral and written CF were both beneficial for the development of L2 grammatical accuracy although written CF showed more facilitative effects than oral CF. Russel and Spada (2006) had not compared different oral feedback strategies, which led Lyster and Saito (2010) to address this gap in the research. They compared the effects of prompts, recasts, and explicit feedback in oral feedback through a synthesis of results from fifteen empirical studies. They found that (1) overall CF had moderate positive effects on L2 grammar development, (2) prompts were more beneficial than recasts, and (3) the effects of explicit correction were not significantly different from the other two CF types. These synthesized results suggest that teachers should be encouraged to use oral CF, particularly prompts, to facilitate the development of L2 grammatical accuracy.

Apart from investigating the effects of CF on accuracy development, some studies (Ammar, 2008; Guchte et al., 2015; Hawkes & Nassaji, 2016; Lyster & Izquierdo, 2009; Sato & Lyster, 2012) examined the effects of CF on fluency development as gauged by improvements in learners' speed of processing and production of grammatical structures on oral or written tests. It is important to measure fluency in the development of grammar. According to Skill Acquisition Theory (DeKeyser, 2015), the development of L2 interlanguage involves a transition from controlled knowledge processing (low fluency) to automatic processing (high fluency). Overall, the above studies showed beneficial effects of CF on promoting fluency, but mixed findings were reported regarding which type of CF strategy was more beneficial.

Three studies (Ammar, 2008; Hawkes & Nassaji, 2016; Lyster & Izquierdo, 2009) assessed fluency by recording learners' reaction time which was the average/overall time used by learners to complete each/all testing item(s) in computerized error correction tests (Hawkes & Nassaji, 2016) or computerized multiple-choice tests (Ammar, 2008; Lyster & Izquierdo, 2009). In an error detection test which required learners to judge whether there were any errors in a set of given episodes, Hawkes and Nassaji (2016) found that learners were slightly faster in detecting the errors that had received recasts than the errors that had not received recasts. Ammar (2008) found that the prompts group, the recasts group, and the control group all improved their speed (reduced reaction time) in completing a computerized multiple-choice post-test, and the prompts group achieved significantly higher fluency gains than the recasts group. This result was partially confirmed in Lyster and Izquierdo (2009) who found that both the prompts group and the recasts group completed a computerized multiple-choice test more quickly after receiving CF treatment but there was no significant difference between the recasts and the prompts group.

Two recent studies (Guchte et al., 2015; Sato & Lyster, 2012) provided further evidence regarding the positive effects of CF on fluency development in spontaneous oral production. Sato and Lyster (2012) compared the effects of prompts and recasts on developing learners' overall speech rate (the number of words per minute) in picture description tests. It was found that both the prompts group and the recasts group improved their oral fluency after CF treatment, but there was no significant difference between the two CF groups. Unlike Sato and Lyster (2012), Guchte et al. (2015) adopted a relatively subjective method to assess fluency. They asked a native speaker to rate learners' speech fluency in two picture description tests, which involved the use of a simple morphological structure and a complex syntactic structure respectively, before and after the CF treatment. The results showed that both CF groups improved their speech fluency after receiving the CF treatment; however, the recasts group spoke more fluently than the prompts group in the test focusing on the complex syntactic structure but not in the oral test focusing on the simple morphological structure.

Results from the above empirical studies which have examined fluency development suggest that teachers can be encouraged to use CF to promote learners' speed of processing and producing grammar structures. Teachers may consider selecting CF strategies in relation to types of grammar structures. For example, both recasts and prompts may enhance the speed of producing simple morphology structures while recasts could be more facilitative than prompts in promoting the speed of producing complex syntactic structures.

As has been shown, a good deal of research has assessed whether learners make gains in their accuracy in using grammatical structures. The

findings from the meta-analyses described above indicate that CF does have positive effects on grammar in terms of developing accuracy. Oral CF appears to benefit learners' development of grammar compared to control groups who did not receive feedback. Research syntheses (e.g., Li, 2010; Mackey & Goo, 2007) indicate larger long-term effects of CF measured on delayed post-tests compared to the short-term effects of CF measured on immediate post-tests, which may suggest the "long-term pedagogical value of corrective feedback" (Mackey et al., 2016, p. 502). These findings should encourage teachers of the value of CF in accuracy-focused grammar instruction.

Few teachers would question the potential value of CF when the focus of instruction is on developing grammar accuracy. A review of advice for teachers in methodology books (Ellis & Shintani, 2014) suggests such works generally advocate a more positive role for the provision of CF in accuracy compared to fluency activities, such as communicative tasks. For example, Harmer (1983) advises that CF interventions, such as "telling students that they are making mistakes, insisting on accuracy and asking for repetition" (p. 44), should be avoided in fluency activities. Scrivener (2011) recommends that correction is helpful when accuracy is the aim of the activity, but when fluency is the aim, interruptions and corrections can "get in the way of the work" (p. 286) since they impede the flow of communication, which is the aim of the activity. Harmer (2007) writes, "The received view has been that when students are involved in accuracy work, it is part of the teacher's function to point out and correct the mistakes students are making" (p. 143), whereas during communicative activities where the focus is on exchanging messages "it is generally felt that teachers should not interrupt students mid-flow to point out grammatical, lexical or pronunciation error, since to do so drags an activity back to the study of language form or precise meaning" (p. 143). In this perspective, teachers' interruptions during fluency activities to provide better forms of expression can result in students no longer needing to negotiate meaning, a key process in language acquisition. Harmer (2007) recommends that during fluency activities teachers provide feedback on content (rather than language) and refrain from attempts to "untangle language problems" (p. 146) until after the activity. On those occasions during fluency work when teachers do feel a need to provide CF, they should do so using "gentle" forms of correction, such as quick reformulations or prompts and not move into the stage of the students having to get it right.

In light of findings from recent research (Guchte et al. 2015; Sato & Lyster, 2012) indicating the positive effects of CF on fluency development, the provision of CF during fluency activities may be reconsidered. The Counterbalance Hypothesis (Lyster & Mori, 2006) proposes that instructional activities and interactional feedback are likely to be particularly

effective when they are in juxtaposition to rather than congruent with a classroom's mainly meaning-focused (or form-focused) orientation because they require a shift in learners' attention and thus additional attentional efforts, which can stimulate interlanguage restructuring and language development. It should be noted that this hypothesis was based on findings from research that adopted learner uptake (the extent to which learners responded to CF) as a measure of interlanguage development, unlike other studies reviewed in this chapter which used results from oral and/or written achievement tests.

The studies reported above involved a range of types of tests whereby gains or development were measured. These test types may be of interest to teachers to assess their students' learning. For example, teachers might consider new ways to assess their learners' grammar learning such as through the use of grammaticality judgment tests or tests of metalinguistic knowledge. If the instruction of a specific structure has included an element of metalinguistic information, the teacher may wish to assess learners' understanding of this information as well as their ability to produce the target structure accurately.

Although research studies have tended to indicate prompts have a greater effect on learning compared to recasts, this does not mean to say that recasts are not effective in the classroom. Findings need to be treated with caution as the research has compared "apples and oranges" or dissimilar strategies (Mackey et al., 2016, p. 504). Prompts tend to elicit modified output, whereas recasts by their nature do not. Modified output is understood to aid learning (Swain, 2005). The best advice to teachers may be to continue to implement a variety of feedback strategies (Mackey et al., 2016).

Grammar Targets: Which Errors Should be Corrected and When?

There is a considerable body of research evidence concerning the role of corrective feedback in learning specific grammatical structures. The vast majority of research studies have concerned learning English as a second or foreign language. Researchers have, for example, examined the effectiveness of CF in learning English articles (Nassaji, 2017; Sheen, 2007), third-person singular possessive determiners (Ammar, 2008; Ammar & Spada, 2006), question formations (Loewen & Nabei, 2007), *that*-trace filter (Goo, 2012), past tense (Ellis, 2007; Ellis et al., 2006; Fu, 2019; Yang & Lyster, 2010), comparative *-er* (Ellis, 2007), passive constructions (Li et al., 2016; Quinn, 2014), embedded questions, and third person *-s* (Zhao, 2015). Relatively fewer studies have examined the effects of CF on learning other second languages. These include the investigation into the effects of CF on learning grammatical gender in French (Lyster, 2004; Lyster & Izquierdo, 2009), dative and comparative structures in German (Guchte et al., 2015),

classifiers and aspect marker *-le* in Chinese (Li, 2014), and plural and locative case morphemes in Turkish (Yilmaz, 2012; Yilmaz & Yuksel, 2011).

Saliency

Language teachers may wonder if it is as useful to provide CF on structures that are easy for learners to notice compared to structures that are hard to perceive. Previous CF studies (e.g., Li, 2014; Yang & Lyster, 2010) have been conducted to answer this question, and their results showed the effects of CF strategies changed when the saliency of the target structure varied. Based on the features of grammatical structures and the criteria of structural saliency introduced by previous researchers (Goldschneider & DeKeyser, 2001; Li, 2014), the term *salient structure* is used in this chapter to refer to a structure that can easily be heard or perceived in L2 input, conveys a clear one-to-one form–meaning mapping, or involves easy rule explanations; the term *non-salient structure* is used to refer to a structure that can only be heard or noticed in L2 input with difficulty, conveys an opaque form–meaning mapping, or involves complex rule explanations. Although it is acknowledged that other factors (e.g., position of a structure in treatment tasks) may also influence structural saliency, these will not be considered in the following review. We note that the distinction between salient and non-salient is relative rather than absolute. For example, English possessive determiners are relatively salient because they can be heard in L2 input clearly, their form–meaning mapping is transparent (attribute possession to someone or something), and their rule explanation is easy (agree with the gender of the possessor and come before nouns). In contrast, English articles are relatively non-salient because they are "difficult to notice in many contexts" (Nassaji, 2017, p. 357), and their form–meaning mapping is not straightforward. The indefinite article, for example, can be used in a specific or a non-specific sense (Quirk et al., 1985). Rule explanation is complicated because English articles have a range of uses.

For this review, we divided previous CF studies into three groups based on the saliency of their target structures (see Table 17.3). One group of studies investigated relatively salient structures, including English possessive determiners (Ammar, 2008; Ammar & Spada, 2006), English question formation (Loewen & Nabei, 2007), and English passive construction (Li et al., 2016; Quinn, 2014). Another group of studies examined relatively non-salient structures, including French gender (Lyster, 2004; Lyster & Izquierdo, 2009), English regular past tense *-ed* (Ellis et al., 2006), English *that*-trace filter (Goo, 2012), and English articles (Nassaji, 2017; Sheen, 2007). The third group of studies compared salient and non-salient structures, including English regular past tense *-ed* and comparative *-er* (Ellis, 2007), English irregular and regular past tense (Yang & Lyster, 2010),

Turkish plural and locative case morphemes (Yilmaz, 2012; Yilmaz & Yuksel, 2011), Chinese classifiers and aspect marker *-le* (Li, 2014), German comparative and dative morphemes (Guchte et al., 2015), and English embedded question and third person *-s* (Zhao, 2015). For example, Yang and Lyster (2010) investigated the effects of prompts and recasts on learning a salient (English irregular past tense) and a non-salient structure (English regular past tense). They assigned learners into three groups – a prompts group, a recasts group, and a control group – who received prompts, recasts, and no CF on errors of the salient and the non-salient structure respectively. Learners' knowledge of both types of structures was measured through written narrative tests and story-retelling tests before, immediately after, and two weeks following the CF treatment. The results showed prompts were more facilitative than recasts on the development of the non-salient structure, while prompts and recasts had identical effects on the development of the salient structure.

Most of the studies investigating the effects of CF on the development of salient structures reported beneficial effects of CF (Ammar, 2008; Ammar & Spada, 2006; Li et al., 2016; Loewen & Nabei, 2007). These studies can be further divided into three subgroups, studies investigating the effects of output-prompting (e.g., prompts) and input-providing (e.g., recasts) CF (Ammar, 2008; Ammar & Spada, 2006; Loewen & Nabei, 2007), studies comparing the effects of explicit and implicit CF (Loewen & Nabei, 2007), and studies exploring the timing effects of CF (Li et al., 2016; Quinn, 2014). Studies comparing the effects of output-prompting and input-providing CF on learning a salient structure found that (1) output-prompting CF was more beneficial than input-providing CF (Ammar, 2008; Ammar & Spada, 2006) and (2) output-prompting and input-providing CF were equally effective when the length of CF treatment (half an hour) was relatively short (Loewen & Nabei, 2007). In the same study, Loewen and Nabei (2007) also found that explicit and implicit CF showed identical effects on learning a salient structure. Studies (Li et al., 2016; Quinn, 2014) comparing immediate CF (provided during interaction) and delayed CF (provided after interaction), however, reported contradictory results regarding their effects on learning the same salient structure (passive construction). Quinn (2014) found the timing of CF did not have a significant impact on L2 development although Li et al. (2016) reported that immediate CF was more beneficial than delayed CF.

Overall, positive effects of CF were also reported in the studies targeting non-salient structures, although results about the effects of different CF strategies have not been consistent (Ellis et al., 2006; Goo, 2012; Lyster, 2004; Lyster & Izquierdo, 2009; Nassaji, 2017; Sheen, 2007). These studies can be further divided into three subgroups, studies investigating the effects of output-prompting and input-providing CF (Lyster, 2004; Lyster & Izquierdo, 2009), studies investigating the effects of explicit and implicit CF (Ellis et al., 2006; Goo, 2012; Sheen, 2007), and a study examining the

effects of intensive and extensive recasts (Nassaji, 2017). Experimental research comparing the effects of output-prompting and input-providing CF on learning a non-salient structure found that input-providing and output-prompting CF were equally effective (Lyster & Izquierdo, 2009). However, classroom-based research found that output-prompting CF was more effective than input-providing CF (Lyster, 2004). The studies examining the effects of explicit (e.g., metalinguistic feedback) and implicit (e.g., recasts) CF on learning a non-salient structure (Ellis et al., 2006 and Sheen, 2007) found that explicit CF was more effective than implicit CF, while Goo (2012) found explicit CF was as effective as implicit CF. The beneficial effect of CF on the development of non-salient structures was also reported in Nassaji (2017) who examined the effects of intensive and extensive recasts on the acquisition of English articles. Learners were divided into three groups, an intensive recasts group who only received recasts on errors of English articles, an extensive recasts group who received recasts on errors of a wide range of structures including English articles, and a control group who did not receive CF. After comparing the three groups' scores on post-tests, Nassaji (2017) found that the extensive recasts group benefited more than the intensive recasts group as the extensive recasts group outperformed the control group while the intensive recasts group did not.

The studies exploring the effectiveness of different CF strategies on learning both salient and non-salient structures (Ellis, 2007; Guchte et al., 2015; Li, 2014; Yang & Lyster, 2010; Yilmaz, 2012; Yilmaz & Yuksel, 2011; Zhao, 2015) also reported overall beneficial effects of CF, while mixed results were found regarding which type of CF favored which kind of structure. These studies can be further divided into three subgroups, studies comparing the effects of output-prompting and input-providing CF (Guchte et al., 2015; Yang & Lyster, 2010), studies comparing the effects of explicit and implicit CF (Ellis, 2007; Li, 2014; Yilmaz, 2012; Zhao, 2015), and studies examining the effects of communication mode (Yilmaz, 2012; Yilmaz & Yuksel, 2011) on learning a salient and a non-salient structure. The studies comparing the effects of input-providing and output-prompting CF on learning both types of structures found that (1) output-prompting CF was more effective than input-providing CF in promoting the development of non-salient structures (Yang & Lyster, 2010), (2) input-providing CF was as effective as output-prompting CF in facilitating the development of salient structures (Yang & Lyster, 2010), (3) output-prompting CF was more effective than input-providing CF in learning both salient and non-salient structures (Guchte et al., 2015), and (4) input-providing CF had a greater effect on the development of the salient structure compared to the non-salient structure (Guchte et al., 2015).

Studies (Ellis, 2007; Li, 2014; Yilmaz, 2012; Zhao, 2015) comparing the effects of explicit and implicit CF on learning a salient and a non-salient structure also reported mixed results. Ellis (2007) found the non-salient

structure benefited more from explicit CF than the salient structure although neither the salient nor the non-salient structure developed when implicit CF was provided. Yilmaz (2012) reported that the salient structure developed more rapidly than the non-salient structure regardless of CF type, but Zhao (2015) found structural saliency did not play a role in the effects of CF when both types of structures benefited equally from explicit and implicit CF. Moreover, Li (2014) found learners' overall language proficiency moderated the effects of different CF on learning both types of structures. That is, for high-proficiency learners, explicit and implicit CF were both effective when learning both types of structures; but for low-proficiency learners, explicit CF was more beneficial than implicit CF when learning both types of structures. In addition to the studies examining the effects of different CF strategies on learning a salient and a non-salient structure, Yilmaz and Yuksel (2011) and Yilmaz (2012) explored the development of both types of structures under two CF communication modes, a face-to-face mode where a researcher provided face-to-face CF and a computer-mediated mode where the researcher provided text-based CF through a chat tool on computers. Yilmaz and Yuksel (2011) found that the salient and the non-salient structure benefited equally from recasts under either mode when the non-salient structure appeared in a salient position (first word in each sentence) in the treatment task. However, when both types of structures appeared in the same word position, Yilmaz (2012) found the salient structure benefited more from CF than the non-salient structure regardless of communication mode.

From this body of research, classroom teachers may note that CF has been found to be effective for both salient and non-salient grammatical structures. It would seem appropriate therefore, on a practical level, that teachers provide CF on both kinds of structures. Research findings across different studies indicate that all types of CF strategy (output-prompting, input-providing, implicit and explicit) are effective for salient and non-salient structures, although findings as to whether one or another strategy is more effective appear mixed. It may thus be recommended that teachers do not adhere to only one type of feedback strategy in provision of feedback on salient and non-salient structures but rather implement various feedback strategies "even if they *think* one kind is the most effective" (Mackey et al., 2016, p. 504). However, results from Li (2014) showed strong evidence that learners' proficiency may influence the effectiveness of CF strategy types. As this indicated that low-proficiency-level learners benefit in particular from explicit feedback, teachers of low-proficiency-level learners could possibly use more explicit strategies more often. Teachers often provide CF on any number of different incorrect grammatical structures. Teachers may thus find encouraging the results from Nassaji (2017) that indicated that the group receiving extensive feedback benefited more than the group receiving feedback on only one structure.

Learners' Prior Knowledge of Grammar Targets

Language teachers may want to know if they should adopt different strategies to correct grammatical errors when learners have limited or good prior knowledge of the grammatical structures. Learners' prior knowledge might influence the efficacy of CF given that Pienemann's *Teachability Hypothesis* (1988) predicts that L2 instruction (e.g., CF) will be facilitative when learners' current developmental level (prior knowledge) is close to the developmental stage of the target structure. A series of studies (Ammar, 2008; Ammar & Spada, 2006; Mackey & Philp, 1998) have investigated the influence of learners' prior knowledge or developmental readiness on L2 learning under different CF conditions. For example, Ammar and Spada (2006) assigned their learners into two groups based on their pre-test scores of English possessive determiners, a high prior knowledge group whose accuracy was higher than 50 percent on pre-tests and a low prior knowledge group whose accuracy was lower than or equivalent to 50 percent on pre-tests. Within each experimental group, there were three subgroups, recasts low/high prior knowledge group, prompts low/high prior knowledge group, and control low/high prior knowledge group. The results showed that the high prior knowledge learners benefited equally from recasts and prompts, while the low prior knowledge learners benefited more from prompts than recasts.

For this review, we grouped previous CF studies based on their participants' pre-test scores (see Table 17.3). Please note that although these studies did not all directly address the question of learners' prior knowledge, they included information on this. As learners achieved an extensive range of pre-test scores (accuracy scores between 0% and 90%), we divided these studies into three groups: studies that recruited learners with limited prior knowledge of a target structure (mean accuracy lower than 10% on pre-tests); with moderate prior knowledge (mean accuracy between 10% and 70% on pre-tests); and with good prior knowledge (mean accuracy higher than 70% on pre-tests). The review found that CF showed overall positive effects on L2 development in studies that recruited learners with limited or moderate prior knowledge of target structures. Although studies recruiting learners with limited prior knowledge of target structures (Guchte et al., 2015; Li et al., 2016; Yilmaz, 2012; Yilmaz & Yuksel, 2011) found CF promoted L2 development, Li et al. (2016) points out that the efficacy of CF might be constrained by learners' developmental readiness. We found that the studies recruiting participants with moderate prior knowledge of target structures also indicated positive effects of CF on L2 grammar development (Ammar, 2008; Ammar & Spada, 2006; Goo, 2012; Guchte et al., 2015; Lyster, 2004; Nassaji, 2017; Sheen, 2007; Yang & Lyster, 2010). However, CF was less effective in studies recruiting participants with good prior knowledge (Ellis, 2007; Ellis et al., 2006;

Loewen & Nabei, 2007; Lyster & Izquierdo, 2009; Zhao, 2015). Loewen and Nabei (2007), for example, investigated the effects of CF on the development of English question formation when learners showed good prior knowledge of the structure on a written pre-test. The results of an untimed, written post-test indicated that CF did not facilitate the development of English question formation.

Suggestions that teachers forgo providing feedback on grammatical structures that they perceive to be well known by their learners may be premature. Further research is needed, especially research that collects evidence from oral tests as well as written tests. However, on the basis of this review, teachers might reflect on their teaching experiences to consider whether they need to provide CF on well-developed structures at all times. Possibly their CF efforts might be more usefully spent in addressing errors in those structures that are new or partially acquired by their learners. This is not to say teachers would no longer help learners with well-developed structures. They could, for example, on occasion require students to record their oral production or gather samples of their written work and ask the students to identify and correct any grammatical errors. Learners often are able to identify and remedy errors in structures they know well. For a review of research into CF in relation to language proficiency and developmental readiness, see Chapter 34.

Conclusion

In regard to the question of whether learner errors should be corrected, our review of the research suggests that CF is effective in aiding the development of L2 grammar. Overall CF appears to promote the development of L2 grammar in terms of accuracy, and some research has indicated it can contribute to fluency. Thus, teachers can use CF in both accuracy and fluency classroom tasks. In fluency tasks, teachers will of course consider factors other than grammar acquisition, such as affective factors. If teachers do opt to provide CF on grammar in fluency tasks, we suggest they draw on the kinds of CF strategies that do not overtly interrupt the communicative flow. Quick reformulations (recasts) and prompts, that is implicit CF strategies, can provide the kind of "gentle" correction alluded to in work on teaching methodology (Harmer, 2007). In regard to the question of how grammar errors should be corrected, the research indicates that all CF strategies are effective, including recasts (input providing) and prompts (which lead learners to modify their output), as well as explicit and implicit CF. At a practical level, teachers' decisions about how to provide CF is often based on multiple factors, including teaching objectives. When the lesson has accuracy objectives, explicit CF may be seen by teachers as particularly appropriate. When fluency is the objective, implicit CF may seem more

Table 17.3 *Grammar targets and CF studies*

CF types	Studies with salient grammar targets	Studies with non-salient grammar targets	Studies in which learners have limited prior knowledge of grammar targets	Studies in which learners have moderate prior knowledge of grammar targets	Studies in which learners have developed prior knowledge of grammar targets
Output-prompting CF vs. Input-providing CF	Ammar (2008)* Ammar & Spada (2006)* Guchte et al. (2015)* Loewen & Nabei (2007)* Yang & Lyster (2010)**	Guchte et al. (2015) Lyster (2004)* Lyster & Izquierdo (2009)** Yang & Lyster (2010)	Guchte et al. (2015)	Ammar (2008) Ammar & Spada (2006) Guchte et al. (2015) Lyster (2004) Yang & Lyster (2010)	Loewen & Nabei (2007) Lyster & Izquierdo (2009)
Explicit CF vs. Implicit CF	Ellis (2007)* Li (2014)* Loewen & Nabei (2007) Yilmaz (2012)**	Ellis (2007) Ellis et al. (2006)* Goo (2012)* Li (2014) Sheen (2007)* Yilmaz (2012)	Yilmaz (2012)	Goo (2012) Sheen (2007)	Ellis et al. (2006) Ellis (2007) Loewen & Nabei (2007)
Intensive recasts vs. Extensive recasts		Nassaji (2017)*		Nassaji (2017)	
Explicit recasts vs. Implicit recasts	Zhao (2015)***	Zhao (2015)			Zhao (2015)
Immediate recasts vs. Delayed recasts	Li et al. (2016)* Quinn (2014) †		Li et al. (2016)	Quinn (2014)	
Computer-mediated recasts vs. Face-to-face recasts	Yilmaz & Yuksel (2011)**	Yilmaz & Yuksel (2011)	Yilmaz & Yuksel (2011)		

Note. * These studies established the effectiveness of CF based on the results of between-group comparisons on post-test scores, either between different CF groups or between CF groups and no CF groups. ** These studies established the effectiveness of CF based on the results of within-group comparisons, between pre- and post-tests scores of each group. *** These studies established the effectiveness of CF based on the results of both between-group and within-group comparisons. † This study did not identify significant effects of CF based on the results of between-group comparisons.

appropriate. However, we suggest that teachers also consider learner proficiency level in light of findings from Li (2014) that indicate the greater effectiveness of explicit CF compared to implicit CF with low-proficiency-level learners.

To address the question of which grammar errors should be corrected and when, we reviewed findings from the studies listed in Table 17.3. Overall, the studies listed in columns 2 and 3 indicate that CF is effective with both salient and non-salient grammar structures. Among these studies, Nassaji (2017) found extensive CF (recasts on a range of structures) is more effective than intensive CF (recasts on a single structure). In our experience of teaching, extensive CF is a fairly common teaching practice. The review of studies listed in columns 4, 5, and 6 suggests that CF is particularly effective for structures that are new to or only partially known by the learners. In view of this finding, we suggested earlier that teachers might opt for self-correction activities to enable their students to correct errors on well-known structures. On a practical classroom level, structures may be better known by some compared to other students. This could complicate any decision-making about correcting grammar errors on the basis of learners' prior knowledge.

References

Ammar, A. (2008). Prompts and recasts: Differential effects on second language morphosyntax. *Language Teaching Research,12*(2), 183–210. https://doi.org/10.1177/1362168807086287.

Ammar, A. & Spada, N. (2006). One size fits all?: Recasts, prompts, and L2 learning. *Studies in Second Language Acquisition, 28*(4), 543–574. https://doi.org/10.1017/S0272263106060268.

Basturkmen, H. (2017). Explicit versus implicit grammar knowledge. In J. Liontas (ed.), *TESOL Encyclopedia of English Language Teaching* (Vol. V, pp. 2738–2743). Hoboken, NJ: John Wiley .

Bygate, M. (1994). Adjusting the focus: Teacher roles in task-based learning of grammar. In M. Bygate, A. Tonkyn & E. Williams (eds.), *Grammar and the Language Teacher* (pp. 237–259). London: Prentice Hall.

Chaudron, C. (1977). A descriptive model of discourse in the corrective treatment of learners' errors. *Language Learning*, *27*(1), 29–46. https://doi.org/10.1111/j.1467-1770.1977.tb00290.x.

DeKeyser, R. (2015). Skill acquisition theory. In B. VanPatten & J. Williams (eds.), *Theories in second language acquisition: An introduction* (2nd ed., pp. 94–112). New York: Routledge.

Ellis, R. (2005). Measuring implicit and explicit knowledge of a second language: A psychometric study. *Studies in Second Language Acquisition, 27*(2), 141–172. https://doi.org/10.1017/S02722631050 50096.

(2007). The differential effects of corrective feedback on two grammatical structures. In A. Mackey (ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 339–360). Oxford: Oxford University Press.

(2012). *Language teaching research and language pedagogy*. Malden, MA: Wiley-Blackwell.

Ellis, R., Loewen, S. & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition, 28*(2), 339–368. https://doi.org/10.1017/S0272263106060141

Ellis, R. & Shintani, N. (2014). *Exploring language pedagogy through second language acquisition research*. Abingdon: Routledge.

Fu, M. (2019). The timing effects of corrective feedback and their associations with working memory, declarative memory and procedural memory. PhD dissertation in progress. University of Auckland, New Zealand.

Goldschneider, J. & DeKeyser, R. (2001). Explaining the "natural order of L2 morpheme acquisition" in English: A Meta-analysis of multiple determinants. *Language learning*, *51*(1), 1–50. https://doi.org/10.1111/1467-9922.00147.

Goo, J. (2012). Corrective feedback and working memory capacity in interaction-driven L2 learning. *Studies in Second Language Acquisition, 34*(3), 445–474. https://doi.org/10.1017/S0272263112000149.

Guchte, M., Braaksma, M., Rijlaarsdam, G. & Bimmel, P. (2015). Learning new grammatical structures in task-based language learning: The effects of recasts and prompts. *Modern Language Journal, 99*(2), 246–262. https://doi.org/10.1111/modl.12211.

Harmer, J. (1983). *The practice of English language teaching*. London: Longman.

(2007). *The practice of English language teaching* (4th ed.). Harlow: Pearson Educational Limited.

Hawkes, L. & Nassaji, H. (2016). The role of extensive recasts in error detection and correction by adult ESL students. *Studies in Second Language Learning and Teaching*, *6*(1), 19–41. http://dx.doi.org/10.14746/ssllt.2016.6.1.2.

Li, S. (2010). The effectiveness of corrective feedback in SLA: A meta-analysis. *Language Learning*, *60*(2), 309–365. https://doi.org/10.1111/j.1467-9922.2010.00561.x.

(2014). The interface between feedback type, L2 proficiency, and the nature of the linguistic target. *Language Teaching Research*, *18*(3), 373–396. https://doi.org/10.1177/1362168813510384.

Li, S., Zhu, Y. & Ellis, R. (2016). The effects of the timing of corrective feedback on the acquisition of a new linguistic structure. *Modern Language Journal*, *100*(1), 276–295. https://doi.org/10.1111/modl.12315.

Loewen, S. (2012). The role of feedback. In S. Gass & A. Mackey (eds.), *The Routledge handbook of second language acquisition* (pp. 24–40). Abingdon: Routledge.

Loewen, S. & Nabei, T. (2007). Measuring the effects of oral corrective feedback on L2 knowledge. In A. Mackey (ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 361–376). Oxford: Oxford University Press.

Lyster, R. (2004). Differential effects of prompts and recasts in form-focused instruction. *Studies in Second Language Acquisition, 26*(3), 399–432. https://doi.org/10.1017/S0272263104263021.

Lyster, R. & Izquierdo, J. (2009). Prompts versus recasts in dyadic interaction. *Language Learning,59*(2), 453–498. https://doi.org/10.1111/j.1467-9922.2009.00512.x.

Lyster, R. & Mori, H. (2006). Interactional feedback and instructional counterbalance. *Studies in Second Language Acquisition*, *28*(2), 269–300. https://doi.org/10.1017/S0272263106060128.

Lyster, R. & Ranta, L. (1997). Corrective feedback and learner uptake. *Studies in Second Language Acquisition*, *19*(1), 37–66.

Lyster, R. & Saito, K. (2010). Oral feedback in classroom SLA: A meta-analysis. *Studies in Second Language Acquisition*, *32*(2), 265–302. https://doi.org/10.1017/S0272263109990520.

Mackey, A. & Goo, J. (2007). Interaction research in SLA: A meta-analysis and research synthesis. In A. Mackey (ed.), *Conversational interaction in second language acquisition: a series of empirical studies* (pp. 407–452). Oxford: Oxford University Press.

Mackey, A., Park, H. & Tagarelli, K. (2016). Errors, corrective feedback and repair. In H. Hall (ed.), *The Routledge handbook of English language teaching* (pp. 499–512). Abingdon: Routledge.

Mackey, A. & Philp, J. (1998). Conversational interaction and second language development: Recasts, responses, and red herrings? *Modern Language Journal*, *82*(3), 338–356. https://doi.org/10.1111/j.1540-4781.1998.tb01211.x.

Nassaji, H. (2009). Effects of recasts and elicitations in dyadic interaction and the role of feedback explicitness. *Language Learning*, *59*(2), 411–452. https://doi.org/10.1111/j.1467-9922.2009.00511.x.

(2017). The effectiveness of extensive versus intensive recasts for learning L2 grammar. *Modern Language Journal*, *101*(2), 353–368. https://doi.org/10.1111/modl.12387.

Pienemann, M. (1988). Is language teachable? Psycholinguistic experiments and hypotheses. *Applied Linguistics*, *10*(1), 52–79.

Quinn, P. (2014). Delayed versus immediate corrective feedback on orally produced passive errors in English. Unpublished Ph.D. dissertation, University of Toronto, Canada.

Quirk, R., Greenbaum, S., Leech, G. & Startvik, J. (1985). *A Comprehensive grammar of the English language*. London; New York: Longman.

Ranta, L. & Lyster, R. (2007). A cognitive approach to improving immersion students' oral language abilities: The awareness-practice-feedback sequence. In R. DeKeyser (ed.), *Practice in a second language: perspectives from applied linguistics and cognitive psychology* (pp. 141–160). Cambridge: Cambridge University Press.

Russell, J. & Spada, N. (2006). The effectiveness of corrective feedback for the acquisition of L2 grammar: A meta-analysis of the research. In J. Norris & L. Ortega (eds.), *Synthesizing research on language learning and teaching* (pp. 133–164). Amsterdam: John Benjamins.

Sato, M. & Lyster, R. (2012). Peer interaction and corrective feedback for accuracy and fluency development. *Studies in Second Language Acquisition*, *34(4)*, 591–626. https://doi.org/10.1017/S0272263112000356.

Scrivener, J. (2011). *Learning teaching: The essential guide to English language teaching* (3rd ed.). Oxford: Macmillan Educational.

Sheen, Y. (2007). The effects of corrective feedback, language aptitude, and learner attitudes on the acquisition of English articles. In A. Mackey (ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 301–322). Oxford: Oxford University Press.

Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (ed.), *Handbook of research in second language teaching and learning* (pp. 471–483). Mahwah, NJ: Lawrence Erlbaum.

Thornbury, S. (2018). Learning grammar. In J. Richards & A. Burns (eds.), *The Cambridge guide to learning a second language* (pp. 183–192). Cambridge: Cambridge University Press.

Yang, Y. & Lyster, R. (2010). Effects of form-focused practice and feedback on Chinese EFL learners' acquisition of regular and irregular past tense forms. *Studies in Second Language Acquisition*, *32*(2), 235–263. https://doi.org/10.1017/S0272263109990519.

Yilmaz, Y. (2012). Relative effects of explicit and implicit feedback: The role of working memory capacity and language analytic ability. *Applied Linguistics*, *34*(3), 344–368. https://doi.org/10.1093/applin/ams044.

Yilmaz, Y. & Yuksel, D. (2011). Effects of communication mode and salience on recasts: A first exposure study. *Language Teaching Research*, *15*(4), 457–477. https://doi.org/10.1177/1362168811412873.

Zhao, Y. (2015). The effects of explicit and implicit recasts on the acquisition of two grammatical structures and the mediating role of working memory. Unpublished Ph.D. dissertation, University of Auckland, New Zealand.