

# Corrective Feedback in SLA: Theoretical Relevance and Empirical Research

Jin Chen<sup>1</sup>, Jianghao Lin<sup>2</sup> & Lin Jiang<sup>3</sup>

<sup>1</sup> International College, Guangdong University of Foreign Studies, Guangzhou, China

<sup>2</sup> Laboratory of Language Engineering and Computing, Guangdong University of Foreign Studies, Guangzhou, China

<sup>3</sup> Faculty of English Language and Culture, Guangdong University of Foreign Studies, Guangzhou, China

Correspondence: Jianghao Lin, Laboratory of Language Engineering and Computing, Guangdong University of Foreign Studies, No. 2 North Baiyun Avenue, Guangzhou, Guangdong, China. Tel: 1-341-617-4331. E-mail: lin\_hao@foxmail.com

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## Abstract

Corrective feedback (CF) refers to the responses or treatments from teachers to a learner's nontargetlike second language (L2) production. CF has been a crucial and controversial topic in the discipline of second language acquisition (SLA). Some SLA theorists believe that CF is harmful to L2 acquisition and should be ruled out completely while others regard CF as an essential catalyst for L2 development. The last two decades have witnessed a dramatic increase in empirical research on the effectiveness of CF. This article, with an aim to provide an informed knowledge of the potential role of CF, briefly traces the history of research on CF and proposes some recommendations for further studies. It starts by surveying a range of theoretical stances on the role of error and error correction (also known as CF) in SLA. It then moves into detailed discussion of three issues on CF heatedly debated either within a cognitive or a sociocultural framework. By examining the empirical findings, some possible topics for further studies are uncovered.

**Keywords:** cognitive perspective, corrective feedback, second language acquisition, sociocultural framework

## 1. Introduction

Corrective feedback (CF), also known as error correction or grammar correction, is a crucial means adopted by teachers to treat learners' errors in second language (L2) classroom. For decades, there have been controversial arguments about the role of error and CF, both theoretically and empirically. Initiated by early Behaviorist approaches, error is considered to be a sinful act and should be eradicated. Contrastive Analysis and Error analysis, in essence, echo Behaviorist views and study the source of error, in an attempt to prevent them. However, they fail to explain why learners continue to make errors in language practice despite various types of intervention (including CF). Thus, Krashen (1985) with his Monitor Model, the first general second language acquisition (SLA) theory, completely rules out the role of CF. Contrary to Krashen's viewpoint, some perspectives (e.g., Dekeyser, 2003; Gass & Mackey, 2006; Pienemann, 1998; Vygotsky, 1978), from cognitive to sociocultural, see the potential of CF in language acquisition and learning.

Deriving much impetus from the theoretical stances, numerous empirical studies have been carried out. Most of the studies (e.g., Bitchener & Knoch, 2008; Ellis, Loewen, & Erlam, 2006; Ferris, 2002; Jiang & Chen, 2013; Lyster, 2004; Van Beuningen, de Jong, & Kuiken, 2012) are influenced by cognitive framework to address the fundamental question as to whether CF gives rise to L2 learning. Specifically, two key topics are heatedly discussed, which are the effects of CF on target grammatical structures or overall language development for one thing, and the comparison of different CF strategies for another. However, these findings have been inconclusive.

Although CF is delivered by teachers under social context, there is a dearth of discussion on CF that is influenced by sociocultural perspectives. Recently, some researchers (e.g., Bitchener, 2012; K. Hyland & F. Hyland, 2006; Polio, 2012) propose that CF research should be more on social interaction relationship and on the way how to tune CF to individual learners rather than on testifying the cognitive processing of learning CF could result in. Only scant studies (Aljaafresh & Lantolf, 1994; Erlam, Ellis, & Batstone, 2013; Nassaji & Swain, 2000;

Rassaei, 2014), hitherto, have been conducted to investigate the potential role of CF from sociocultural perspective, which could provide new insights into provocative issues.

The aim of this article is to take stock of the theoretical and empirical literature on the language learning potential of CF. It therefore endeavors to provide an overall picture of CF research and to help move the field forward, with a range of recommendations for further research.

## 2. Theoretical Standpoints

Over the past few decades, SLA theorists and researchers have aired different views on the role and treatment of errors. Some firmly believe that errors interfere with second language development and should be ruled out completely. Others deem errors to be positive because of the light they shed on learners' current state of learning and the role they can play in the development of the target language. In order to have an informed knowledge of this issue, various viewpoints, to be illustrated below, should be taken into account.

### 2.1 Early Perspectives on Error and CF in SLA

Since the middle of the twentieth century, one of the central motifs of SLA research has been the study of learner errors and error treatment, which has been heavily influenced by linguistic perspectives. This section considers, then, approaches like Contrastive Analysis, Error Analysis and Krashen's Monitor Model that tackle the issues regarding the role of errors and CF for L2 learning and acquisition.

Contrastive Analysis (CA) rested its theoretical grounds on Behaviorism, a dominant approach in SLA through the 1950s and 1960s. Beliefs of Behaviorist claimed that L2 learning is to form target-like habits and learner errors inevitably impede the formation of these new habits. Underpinned by Behaviorist view, CA further assumed that the primary source of errors comes from learners' first language (L1). It thus mainly involved in predicting and explaining learner errors via a comparison of L1 and L2 to identify similarities and differences. By doing so, it was pedagogically believed that explanations would be provided to understand why learners make errors and assist teachers to prevent learner errors. However, CA was not always validated by empirical evidence (Falk, 1968; Selinker, 1969) and its value as a panacea of all ills was soon doubted. At the same time, in the field of linguistics, generative accounts represented by Chomsky's (1959) beliefs got the upper hand. This approach focused on the creative nature of language and explanations about the source of learner errors was drawn more upon internal factors.

The disenchantment of CA's ability to predict learner's actual errors, together with developments in linguistics, steered a growing interest in the systematic investigation of L2 learner errors. Another approach, Error Analysis (EA) was accordingly introduced. EA was of the view that the majority of L2 errors do not come from the learner's L1 but are learner-internal. It shifted the role of error to a positive indicator of learners' mental processes that take place during the learning of the target language from a sinful act that cannot be tolerated as suggested by CA. Despite an advanced standpoint made by EA, it soon came under attack, because it failed to account for what occurs in the learner's mind and it was of ambiguity to distinguish whether the errors are derived from L1 influence or from a universal developmental process (Bitchener & Ferris, 2012; Saville-Troike, 2005).

Early scholars (Burt & Kiparsky, 1972; Corder, 1967) seemingly showed more concern with the analysis of errors in their own right, but later they began to direct their attention to the inquiry into the potential effects of CF on L2 learning and development. Most researchers, if not all, were under the influence of Krashen's (1985) Monitor Model which consists of five hypotheses. The first hypothesis, Acquisition-Learning Hypothesis makes a distinction between "acquisition" and "learning" and considers these two types of knowledge as mutually exclusive. The former knowledge, in Krashen's view, is intuitively aware of while the latter one is consciously aware of. For this reason, he saw no role for both explicit instructions and CF in fostering learners' acquired knowledge. Nevertheless, the second hypothesis, the Monitor Hypothesis, reveals that learned knowledge serves as a monitor to remedy the output of the acquired system and hence implies a restricted role of CF for "learning". The Natural Order Hypothesis states that linguistic features or rules of the target language are acquired in a predictable order which is unchangeable even with the intervention of CF or form-focused teaching. In the Input Hypothesis, the central component of the overall theory, Krashen claimed that exposure alone to comprehensible input contributes to language acquisition and thus, by implication, there is no need for CF or formal grammar instruction. This hypothesis is linked with the final one, the Affective Filter Hypothesis which postulates that input may not be processed if the filter is high. Krashen went on to note that CF may hinder L2 development as it is generally believed to strike at learners' confidence and stir up the affective filter. On the whole, Krashen downplayed the role for CF in "acquisition" but he conceded that CF could play an editing role in "learning".

To sum up, when extrapolating from the aforesaid perspectives, it would be reasonable to conclude that the role

of errors and CF in these early years were critically undermined. However, the pendulum has since begun to swing back in the opposite direction when additional perspectives, from cognitive to sociocultural, were under consideration to address the issue of CF in recent years, as to be elaborated in the next section.

## *2.2 Recent Perspectives on Error and CF in SLA*

Over the last two decades, copious research has laid stress on the cognitive and sociocultural value of CF in language acquisition. These two lines of research draw upon a wide array of arguments which are influential in terms of their stated and implied inclusion of a role for CF in SLA process. Before addressing the empirical research, it is necessary for us to have a close look at these perspectives, namely, Processability Theory, Skill-based Theory, Interaction Theory and Sociocultural Theory.

Processability Theory, developed by Pienemann (1998) and his colleagues (Pienemann & Johnston, 1987; Pienemann, Di Biase, & Kawaguchi, 2005), views that L2 learners' cognitive ability to understand and produce language is constrained by a language processor, and that these hierarchically organized constraints result in distinct stages of development in L2 learning. Much empirical evidence (e.g., Johnston, 1985; Pienemann & Mackey, 1993), thus far, has validated these claims and confirmed a predictable order of acquisition. It seems that the natural developmental sequence is well attested and uncontroversial, but what is still debatable, of course, is whether CF or instruction plays a role in language development. Pienemann (2007) points out that formal instruction, interaction or CF cannot alter the natural order, which is also known as Teachability Hypothesis. Some researchers (Bitchener & Ferris, 2012; Mackey, 1999) concur, but further state that certain factors including CF can speed up development, in other words, can move learners more quickly to the next hierarchical stage if the factors are provided in accordance with learners' current developmental levels. In order to testify these arguments, Dyson (2010), within this framework, examined language development in response to CF on writing and found that CF did facilitate development but could not lead learners to skip stages. In a word, it would not be difficult to infer from Processability Theory that CF is only effective when it is limited within potential constraints.

Skill-based Theory is best represented by the work of Anderson (1983, 1985), McLaughlin (1987, 1990) and DeKeyser (2003, 2007a). The theory is first and foremost relevant to the learning of all complex cognitive skills (e.g., learning mathematics etc.), but then has also been extended to language learning, as the theory asserts. The general philosophy is that skill learning is a process involving development from controlled to automatic processing; that the former draws on declarative knowledge and the latter draws on procedural knowledge; and that learners go from controlled to automatic processing with practice. In this sense, there are two important roles for CF in language learning. First, CF develops learners' declarative knowledge and helps learners to monitor the wrong information to ensure that errors would not get into procedural knowledge and become automatic manner (Polio, 2012). Second, CF, to some extent, stimulates learners' declarative knowledge to convert into procedural knowledge, as it offers learners a chance to practice language (Bitchener, 2012). Nonetheless, DeKeyser (2007b) indicates that the amount and nature of CF during practice are still needed to be investigated in more research. In short, Skill-based Theory regards CF as a facilitator in knowledge transformation.

Interaction approach accounts for language learning through input, output and feedback, all of which occur during interaction (Gass & Mackey, 2006; Long, 1996). Of all approaches addressing the role of CF, be it directly or indirectly, the interaction approach is arguably the one in which CF is ardently studied. Interaction research "takes as its starting point the assumption that language learning is stimulated by communicative pressure and examines the relationship between communication and acquisition and the mechanisms (e.g., noticing, attention) that mediate between them" (Gass, 2003). CF that comes as a result of communication, in this regard, may assume two roles in language acquisition. In the process of interaction, CF provides negative evidence which is needed for learners to understand what is unacceptable in the target language. Evidence of this need for language acquisition can be seen in content-based and immersion instructional contexts, where learners may develop language fluency, but they fail to exhibit high levels of performance in some aspects of grammar even after several years of full-day exposure to positive evidence of the target language (Bitchener, 2012). Therefore, positive evidence alone is not sufficient for acquisition and negative evidence provided by CF or grammar instruction is needed for learners to monitor and modify their output. In addition, CF directs learners' attention to linguistic forms and fosters L2 "intake". Schmidt (1990, 1994) holds that when receiving CF, learners notice that there is a mismatch between their current state of knowledge and the target language. Once noticing this gap, learners will voluntarily catch up and this internalization process enables CF to be converted into "intake". He adds that the amount of attention a learner pays to CF may determine the extent to which it becomes intake. All in all, CF, in the viewpoint of Interactionists, serves as a catalyst for L2 acquisition.

Sociocultural Theory, mainly based on the work of Vygotsky (1978, 1981), addresses CF from a different vantage point. It accommodates the opinion that mental activities including language learning are mediated through social interactions between learners and more capable peers. More importantly, language development takes place within learners' zone of proximal development (ZPD), a state between learners' current levels and potential levels. Lantolf and Thorne (2007) suggests that learners, with the assistance of other regulation within ZPD (including scaffolding or CF) can eventually be able to use the L2 autonomously or, in sociocultural terms, to be self-regulated. Thus, Sociocultural Theory believes that CF may inform its usefulness to L2 learning only if it aligns with learners' ZPD.

The aforementioned parts shed light on the theoretical positions that have been advocated in the literature. However, theoretical perspectives can only have validity when they are supported by research evidence. We now move to an extensive and in-depth discussion of empirical research on CF.

### 3. Empirical Research

Over decades, the domain of SLA has witnessed a flurry of research on CF to address the fundamental question: whether CF leads to L2 learning. Research aimed at answering this question has been conducted in either a cognitive or, more recently, a sociocultural framework. With these thoughts in mind, this section outlines three hot issues within two strands of research, which are (1) the effectiveness of CF on language accuracy; (2) the relative merits of different types of CF; and (3) the role of CF from sociocultural perspective.

#### 3.1 Studies on the Effects of CF on Language Development

In 1996, Truscott, championing on Krashen's (1985) theoretical positions, published an influential review article to claim that CF is of no effectiveness and should be completely abandoned concerning its problems of pseudo-learning, learnability and harmful side-effects. Ironically, it is indeed his hardline assertion that aroused vehement disputes and increased interests over this topic rather than ended the discussion. In order to support or object to Truscott's (1996) stance, mounting empirical studies have been conducted to investigate the effectiveness of CF on language learning. The following part thus provides a critical review of these studies in different phrases.

At early stage, some studies (Kepner, 1991; Polio, Fleck, & Leder, 1998; Semke, 1984; Sheppard, 1992) failed to find convincing evidence that CF could help students improve language accuracy of their writing. However, the control group in each study received feedback on writing contents instead of non-CF treatments. A real control group which does not receive any CF, as Truscott (1996) stresses, is strongly needed when investigating the effects of feedback. For this reason, the findings of these studies cannot be adopted to answer the question of effectiveness. They, at best, can be evaluated in terms of the relative effects of different types of CF. Other studies (Ashwell, 2000; Fathman & Whalley, 1990; Ferris & Roberts, 2001) also probed into CF but signaled positive effects of CF. Nonetheless, these studies were troubled by another design flaw for examining texts revisions and not new pieces of writing over time. Truscott (2007) points out that accuracy improvement in revision may be pseudo-learning and sheds no light on the acquisition of linguistic forms in the long run. Thus, the findings of these studies can only be interpreted as effects of CF on revision instead of learning.

The divergent results yielded by early research into effects of CF on language accuracy are probably because of the methodological inadequacies. In order to find compelling evidence, there is clearly a need for robust research that not only includes a control group which receives non-CF but also requires one or more posttest pieces of writing to determine the long-term effects of CF (Ferris, 2002, 2004; Truscott, 1999).

In consideration of the criticisms aimed at the previous research on CF, several recent studies (Bitchener & Knoch, 2008; Lyster & Saito, 2010; Sheen, 2007; Sheen, 2010) are well-designed and methodologically rigorous enough to address the issue on effects of CF. Each of these studies adopted a non-CF control group for comparison and a pretest-posttest-delayed posttest design with new pieces of writing. They all provided consistent results revealing that CF can facilitate learners' language accuracy, at least for the particular features under consideration.

Whereas there seems to be a general consensus among recent scrupulous studies that CF has a role to play in language accuracy, researchers may have inconsistent views on the effects of CF on other aspects of language, like complexity and fluency. Robb, Ross, and Shortreed's study (1986) suggested that CF no matter how salient it is stimulates the improvement in learners' syntactic complexity, accuracy and fluency. Chandler (2003) favored Robb et al.'s (1986) findings that CF has a positive impact on language accuracy and complexity. However, he did not find any significant change in learners' language complexity over time. Moreover, Van Benningen et al. (2012) showed that CF leads to improved accuracy, but does not result in simplified structural complexity and

lexical diversity in students' new writing.

To sum up, the majority of CF studies have proven the positive effects of CF on language accuracy but failed to reach a unanimous conclusion over the effects of CF on language complexity and fluency. In other words, the effect of CF on general language development is still controversial. Though this topic is still pursued in the line of research within cognitive framework, more and more researchers begin to direct their attention on demarcating different types of CF and aim to find out which CF method is more effective to L2 learners.

### *3.2 Studies on Comparison of Different Types of CF*

A distinction has been made in literature between oral and written CF. There is now a very substantial body of both oral and written CF research that has focused on the investigation of the strategies for the correction of learner errors. The subsequent part is to scrutinize different strategies studied in the vein of either oral or written CF research.

In oral CF research, CF types are mainly differentiated in terms of explicitness. Consequently, two kinds of CF, implicit CF (e.g., recasts) and explicit CF (e.g., oral metalinguistic CF) are divided. Some researchers (Haswell, 1983; Lalande, 1982; Leeman, 2003; Lyster, 2004) favor more implicit CF than the explicit one. Lalande (1982) illustrated that implicit CF, urging learners to detect related concepts and principles for themselves, is more likely to enhance learning than would otherwise be the case. This kind of CF practice, in Lalande's sense, would probably result in problem solving which affords the opportunity to reconstruct grammatical structures with expressed intent of making them more accurate. Haswell (1983) lent support to this opinion, and further pointed out that implicit CF not only guides learners to independently solve the problem, but also builds up their agency and enables them to take more responsibility for their own grammatical errors.

However, several studies have found that explicit types of CF are more effective than implicit types of CF. For example, Carroll and Swain (1993) reported that explicit CF is more effective than any other oral error treatment types like recasts and requests for clarification. Similar results have been obtained in a number of classroom studies. Ellis et al. (2006) found that explicit metalinguistic CF is superior to recasts in promoting the acquisition of English regular past tense.

In written CF research, types of written CF have been primarily distinguished in terms of whether they are direct or indirect. The former means that errors are corrected by teachers or other readers, through either direct-only or direct with metalinguistic information. The latter suggests that means like the coding system are used to inspire learners' awareness on their errors but these errors are left to be corrected by learners themselves.

Researchers also have divergent views on the effects of different types of written CF. Some studies (e.g., Bitchener, 2008; Chandler, 2003; Jiang & Chen, 2013; Sheen, 2007) to date suggest that direct CF is superior to indirect CF in that direct CF helps learners to notice and internalize the correct form in a more efficient way. Moreover, Chandler (2003) in her study also found that her participants favor direct CF over indirect CF. However, other studies seemingly showed preference to indirect CF and lessen the value of direct CF (Ashwell, 2000; Ferris, 2002). They argued indirect CF involves greater cognitive process and enables learners to think independently.

To summarize, research into the effects of different types, thus far, have obtained conflicting conclusions. More recently, in an attempt to resolve these divergent views, some researchers (Bitchener, 2012; K. Hyland & F. Hyland, 2006; Lee, 2014; Polio, 2012) propose that research on CF may be investigated from a different stance like sociocultural perspective which they believe could provide new and important insights into the L2 learning process.

### *3.3 Studies on the Role of CF from Sociocultural Perspective*

To date, only scant research has addressed the potential role of CF within sociocultural approach, more exactly, within the theory of ZPD proposed by Vygotsky (1978), whose philosophy is that a developmental zone within which learners are collaboratively enabled to do something they would not otherwise be able to do on their own. CF based on the ZPD concept therefore refers to error/grammar correction contextualized as a negotiated process and aiming at tailoring to learners' state of development.

Aljaafreh and Lantolf (1994) explored how a tutor's interventions involved more implicit CF than explicit CF as three ESL learners moved towards autonomous use of language structures or in sociocultural terms, self-regulation. They argued that the learners' gradually less reliance on regulation provided by others and more on self-regulation constitutes evidence of language development. Nassaji and Swain (2000) surveyed the claim that CF is effective when provided within learners' ZPD, when comparing the effect of negotiated ZPD-related CF versus random CF on the learning of English articles. They demonstrated that the former approach helps two

Korean ESL learners to be self-regulated in correction procedures while the latter one does not. Influenced by these two seminal studies, Rassaei (2014) also investigated the role that CF can play in the socially mediated learning process by making a comparison between scaffolded CF and recasts. The study revealed that properties of negotiation and tuning situated in scaffolding make it outperform recasts and contribute to higher levels of language development. However, when examining graduated CF in accordance with sociocultural theory and explicit CF in accordance with cognitive theory, Erlam et al. (2013) did not discover any evidence that graduated CF results in systematic reduction in the level of assistance provided over time, disaccording with the assertions of previous research. Although there have been encouraging findings from these studies, it seems that the effect of CF within sociocultural perspectives on language development have not yet reached a consensus.

The inconclusive results in these studies may be probably due to inconsistent CF constructs and some methodological inadequacies. With regard to the former, it seems that different studies have diverging operational definitions of CF. The inconformity may not only give rise to divergent conclusions, but also bewilder practitioners as how to interpret and apply the dazzling definitions of CF in classrooms. With regard to the latter, some studies employ small samples of participants and their results could not be generalized. Additionally, language development is assessed only in short-term instead of long-term performance, which may be pseudo-learning rather than true acquisition (Truscott, 1996). Therefore, a unanimous CF construct within sociocultural viewpoint should be established and further empirical studies with rigorous design are urgently needed.

#### **4. Conclusion and Recommendations for Further Research**

This article reflects theoretical and empirical research on the important and controversial topic of CF and its impact on language acquisition and learning. On theoretical level, there are diverging stances on the role of error and CF. It seems that early approaches like CA, EA and Monitor Model eliminate the role of CF; however, recent approaches influenced either by cognitive or sociocultural perspectives believe that CF, to some extent, facilitates L2 learning.

In order to validate the theoretical accounts, countless empirical research has been conducted to answer the fundamental question: whether CF is effective on language acquisition and learning. Most of the studies are carried out within a cognitive framework and manage to address two key issues: the effects of CF on general language development and comparisons of different CF strategies. The findings of these studies have been inconclusive so researchers propose that a sociocultural perspective should be considered to provide innovative insights for CF research. Currently, few studies on CF have been conducted from a sociocultural perspective, especially from the ZPD theoretical perspective. Four representative studies were closely examined in this article. These studies, probably due to some inadequacies in their methodology, yield inconsistent results as well.

Enlightened by the theoretical predictions and the available empirical evidence, some recommendations are proposed for further research. First, considering the fact that most present studies have been carried out in laboratory contexts, with focus on learners' end products, there is further work to be done in terms of more longitudinal qualitative studies tracing individual learners' developmental process during their engagement with CF in naturalistic settings. Such studies, adopting either cognitive or sociocultural SLA framework, may bring a more deepening understanding of the role of CF. Second, there seems to be a need to further establish comprehensive models involving different strategies of CF. Most empirical studies on CF were carried out as a one-shot-treatment which was divorced from actual classroom practice where teachers normally adopt multiple CF methods. Therefore, further studies should strive to develop instructional models which could involve dialogic, peer, teacher and technology-based CF and testify the practical value of the models. Third, research on the effects of ZPD-based CF is still in its infancy and further research is urgently needed. Future research in this area should adopt larger samples of participants to generalize the results. The effects of ZPD-based CF on both short-term and long-term performance as well as on general language development with complexity, accuracy and fluency as indicators should also be taken into account. Finally, individual factors such as learners' personality, motivation and aptitude should be considered in further studies as CF is a question of individual variation.

To sum up, the above CF research agenda may provide deeper insights into SLA theories through further investigations into the contributing effects of CF on language learning. This will allow researchers to pay more attention on the interaction between external learning contexts and internal individual factors rather than on CF proper in their future research. It will also bring about pedagogical implications by informing practitioners how to fine-tune CF for individual needs. In general, the direction of future research in this area is both theory-driven and pedagogical-driven, which will further bridge the gap between theoretical standpoints and classroom practice.

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