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L2 Learners' Proficiency Development through Noticing Feedback

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Abstract

This experimental study investigated the relationship between noticing of corrective feedback and L2 development considering the learners' perspective on error correction. Specifically, it aimed to uncover the noticeability and effectiveness of recasts, prompts, a combination of the two, to determine a relationship between noticing of CF and learning of the past tense. The participants were four groups of college ESL learners (n = 40). Each group was assigned to a treatment condition, but the researcher taught the control group. CF was provided to learners in response to their mistakes in forming the past tense. While noticing of CF was assessed through immediate recall and questionnaire responses, learning outcomes were measured through picture description administered via pre-test, post-test, and delayed post-test design. Learner beliefs about CF were probed by means of a 40-item questionnaire. The results indicated that the noticeability of CF is dependent on the grammatical target it addresses and that the feedback techniques that push learners to self-correct alone or in combination with target exemplars are more effective in. In relation to the learning outcomes, the overall past tense accuracy increased more than that for questions, but there were no significant differences between the groups. Finally, in relation to the beliefs about CF, the participants' responses centered on the importance of oral CF, recasts as CF technique, prompts as CF technique, and affective consequences of CF, two of which mediated the noticeability of the supplied CF, but none impacted the learning outcomes.

Keywords: Noticing, L2 development, Corrective Feedback (CF), Recasts, Prompts, ESL

Background

Different terminology has been used to define and operationalize "corrective feedback". To avoid possible confusion this practice may cause, it is necessary to describe and define each term. The concept of "negative evidence" arises from the two types of input language learners are generally exposed to when learning L2: positive evidence and negative evidence. While positive evidence provides learners with models of what is possible and grammatically acceptable in the target language, negative evidence supplies learners with information about what is unacceptable in L2 (Long 1996; 2006). According to Chaudron (1977), the term "error correction" is used to refer to corrective moves that lead to repair of the

non-target like forms. The techniques, originally coded by Chaudron (1977), represent the taxonomy developed by Lyster & Ranta (1997) for the L2 classroom and are outlined in Table 1. The six feedback techniques were first re-classified by Lyster (2004) into three categories of (1) recasts, (2) explicit correction, and (3) prompts, and most recently regrouped again into "reformulations" and "prompts" by Ranta and Lyster (2007). Recasts and explicit correction were categorized together under "reformulations" because they both supply the learner with either an implicit or explicit reformulation of the target form and are thus input-providing. The "prompt" category (formerly referred to as "negotiation of form", Lyster & Ranta, 1997), in turn, is made of four output-promoting corrective techniques, namely, metalinguistic feedback, elicitation, repetition, and clarification request, all of which are designed to push learners to recognize the corrective intent of CF and to help them fix the error on their own, subsequently correcting it. It is, however, important to remember that each category can differ greatly in terms of implementation and the degree of explicitness/ implicitness of the technique (as dictated by the context).

Uptake and Noticeability

Arguably, the idea of "uptake" first came on the SLA radar with the appearance of Chaudron's (1977) descriptive study of the different types of CF provided by teachers in French immersion, which revealed that some CF techniques (e.g., repetition with emphasis) led to the more immediate reformulation on the part of the learners than did other techniques (e.g., repetition without emphasis). The noticeability of CF has also been investigated by means of another, albeit indirect, measure of awareness: uptake (e.g., Mackey & Philp, 1998; Loewen & Philp, 2006; McDonough & Mackey, 2006). Although the term "uptake" has been used in a variety of research fields (e.g., kinetics, pharmacology, language learning) to refer to different concepts, Lyster & Ranta (1997) were perhaps the first to operationalize the term in the context of CF as "a student's utterance that immediately follows the teacher's feedback and that constitutes a reaction in some way to the teacher's intention to draw attention to some aspect of the student's initial utterance" (p. 49).

Several studies have been undertaken to investigate uptake in relation to the noticing of feedback. To sum up, the studies that have examined the noticeability of recasts as a function of uptake show conflicting results. While some descriptive studies suggest that recasts lead to the least amount of uptake (Lyster & Ranta, 1997; Panova & Lyster, 2002) because they are not always noticed by learners, others support the noticeability of recasts (Ellis *et al.*, 2001; Ohta, 2000; Sheen, 2006). Still, some laboratory studies demonstrate that recasts generally go unnoticed by learners (Mackey *et al.*, 2000) and their noticeability is not contingent on the uptake (Mackey & Philp, 1998). In fact, the use of uptake as a measure of awareness has been questioned by some (e.g., Leeman, 2007; Ortega, 2009) because uptake is not seen as "a robust measure of learner noticing nor of the utility of feedback for L2 development, as it should not be assumed that learners will verbally acknowledge all feedback that they notice" (Leeman, 2007, p. 122). Hence, the noticing research to date has primarily focused on the noticeability of recasts, rarely comparing it to the other CF techniques. What this body of research has yet to consider is the differential noticing of recasts and prompts, to determine if noticing is regulated by other individual variables, and to use a measure that allows for more reports of noticing. Before considering how the noticing of CF may affect L2 development, it is necessary to examine the research that has looked at the effectiveness of CF, which is the focus of the next section.

Noticing of CF and L2 Development

Although a significant number of studies have investigated the noticeability of feedback (Egi, 2007b; Kim & Han, 2007; Mackey *et al*., 2002; Trofimovich *et al*., 2007; Ammar & Sato, 2010a) and the effectiveness of CF (Ammar, 2008; Ammar & Spada, 2006; DeKeyser, 1993; Doughty & Varela, 1998;

Ellis *et al.;* 2006; Lyster, 2004; Sheen, 2007; McDonough, 2005, 2007), they did so considering each element in isolation, without empirically examining the relationship between the noticing of CF and L2 development. Instead, the CF effectiveness research did not consider the noticeability of feedback but did draw conclusions about that noticeability without empirical evidence. The same is true of the noticeability research where based on the noticing scores conclusions about the effectiveness of CF were made, without observed proof.

To sum up, few studies have directly examined the relationship between the noticing of CF and L2 development. Those that have focused on the mediating effect of recasts on L2 development, without comparing this CF type to others (except for Mackey, 2006). While intriguing, drawing final conclusions from this body of research is both imprudent and difficult. It is imprudent because this type of research is still embryonic and as such, warrants additional studies to capture the full extent of what appears to be a complex relationship between noticing and learning. It is also difficult to draw conclusions about the link between noticing and learning from the studies that examined noticing as a function of learner recall (Egi, 2007b; Mackey, 2006; Nabei & Swain, 2002; Ammar & Sato, 2010b) and/ or uptake (Mackey, 2006; Taddarth, 2010) alone. Hence, what is needed is an investigation that would systematically compare the noticeability of several CF types across different targets, using various tools to measure noticing. Furthermore, it would be interesting to determine whether this noticing is mediated by the differences in the learners' beliefs about corrective feedback.

Learner Beliefs

What has yet to be considered is the effect of affective variables on learners' ability to notice feedback. To date, only two affective variables – anxiety and learner attitudes - have been investigated in relation to CF effectiveness, but not its noticeability (Sheen, 2008, 2011). These studies, suggest that affective learner variables influence the effectiveness of CF in the classroom, but it is still not clear whether they impact the noticeability of oral feedback. A recent investigations, in turn, have challenged the assumption of beliefs as a stable construct, suggesting that beliefs can change over time and under different contexts (Tanaka & Ellis, 2003; Barcelos, 2003; Amuzie & Winke, 2009). What these investigations have not systematically addressed, however, is the beliefs learners hold about corrective feedback and its role in the study of language (but see Sheen, 2008, 2011). There have also not been empirical investigations into possible effects these beliefs may have on learners' in-class behavior as it relates to CF and learning outcomes because of it.

Summary

This literature review reiterates that for CF to be effective in language learning, its didactic intent needs to be recognized. That is, learners need to notice that the teacher's correction is targeting the form of an ill-formed utterance and not its meaning. This ability to notice, however, has been shown to be quite limited, especially when feedback is in the form of a recast. Because recasts contain two types of linguistic evidence, learners often find it difficult to identify recasts as corrective moves. When, however, the corrective (vs. communicative) intent behind a recast is made salient, learners are able to recognize it as CF and to learn from it. Still, the noticeability of recasts is contingent on a number of factors and little has been done to compare the noticeability of different CF techniques. The only study (Ammar, 2008) into the noticeability of recasts versus prompts demonstrated that learners are able to notice the feedback on form more readily with prompts them with recasts. Albeit intriguing, the findings of this investigation need to be corroborated by additional research, which should also question the mediating factors on such noticing. Hence, it seems warranted to investigate the relationship between learners' in-class noticing of CF and their L2 learning as a result of it, as well as to determine if the noticeability and benefits of

feedback are dependent on the learners' affective differences, such as beliefs. Although learner beliefs have been shown to underlie learner behavior and learning outcomes, no studies have looked into learner beliefs about CF independently from other language-related constructs. In fact, Loewen *et al.* (2009) showed that learners view the grammar instruction and error correction as distinct categories and called for future research to consider this differentiation. With this in mind, the present study was carried out to address the following research questions:

- Does the provision of CF promote noticing and L2 development?
- Do learner beliefs about CF mediate their noticing and learning of L2 norms?

Statement of Problem

To ensure that the teaching of English as a Second Language (ESL) stays abreast of the developments taking place in the real world. In fact, there have been several overhauls in the way languages, specifically English. Indeed, several researchers in the field of second language acquisition (Schmidt, 2001; Long, 1996; Long & Robinson, 1998; Robinson, 1995, 2001, 2003) have maintained that attention to form plays an important role in learning a second language (L2). Schmidt (2001), in particular, has claimed that it is the conscious *noticing* of the formal aspects of L2 in the input that allows learners to gain awareness of the target forms (i.e., the input becomes intake), which in turn, helps them to monitor the accuracy of their language production. Form-focused instruction (FFI) is believed to promote such noticing.

In fact, the 2007 description of the ESL program for high school reinforces the importance of corrective feedback by devoting entire sections to defining "Focus on Form" and "proactive teaching", explaining ways in which teachers and learners are to focus on accuracy, and highlighting the usefulness of "noticing (of) form". This focus on accuracy points to the fact that today's teachers are not only expected to provide correction to learner errors but are also required to have an understanding of the theoretical underpinnings of the concept. Taken from the Lyster and Ranta's (1997) taxonomy of CF techniques, these include "elicitation", "clarification requests", "metalinguistic feedback", and "repetition" (English as a Second Language, 2007, p. 41), all of which require that, in response to teacher's signal, learners correct their own errors. It is hoped that provision of CF along with the Form-focused instruction will help learners to notice irregularities in their interlanguage. Specifically, what the program claims to focus on is making the corrective process meaningful for learners so that by noticing the differences between their productions and the target form, they are able to better understand how a form and its function contribute to the meaning of a message, consecutively, increasing the accuracy with which they communicate.

The present study is an attempt to systematically compare the noticeability and benefits of recasts to that of prompts and to determine whether such noticing is a function of learner beliefs, defined as learners' metacognitive knowledge about learning (Wenden, 1999). In light of the above, it is necessary to examine learner beliefs about corrective feedback and to determine whether these beliefs guide learners' noticing and learning of the formal properties of L2. The goals of this study are, then, (1) to compare the noticeability and effectiveness of recasts and prompts, (2) to identify a possible relationship between noticing of CF and language learning, and (3) to determine whether learner beliefs about CF mediate what is noticed and learned in the language classroom. The findings of this study will provide additional evidence for the noticeability and efficacy of the two types of CF (namely, recasts and prompts), inform our understanding of learner beliefs about corrective feedback, identify a link between these beliefs and learning outcomes, and serve as a springboard to further research in the area. While the implications of these findings will be useful to the language teaching community at large, they could prove to be of special value to the ESL program designers, professionals, and learners in the province of Quebec, where improvements to the teaching of English are in constant pursuit.

Methodology

The present study was carried out in nine English language classes at an English-medium private educational institution, in Penang. The choice of setting was influenced by three factors: age of participants, the opportunity to conduct research in the classroom context, and the particularity of the English language instruction. A closer look at the studies on age and CF reveals that the age of children investigated ranged from 6-12 years, but the maturity of the adult participants was not always specified. It could, however, be assumed that these adults were in their 20s.

Participants

The participants in this study were 54 college students (29 females; 25 males) and their two male ESL teachers. The students ranged from 19 to 24 years in age (mean age: 21.50). While many spoke more than one language (language mean: 2), they felt more proficient in English, the language of instruction at the College. The general description of the second ESL course the participants were attending at the time of the study stated that it aimed at people with a good base in spoken and written English, who still needed to improve their fluency and accuracy as well as to increase the level of confidence they felt when functioning in the L2. The overall objective of the course was to increase learners' communication skills by having them engage in activities that target the four skills of language knowledge.

Feedback Conditions

Each teacher was given an instructional booklet, which described the objectives of the study and target features under investigation, explained the timeline and the data collection tools, as well as detailed the instructional materials to be used during the experiment. The teachers were instructed to provide CF on the errors with the simple past verb forms and questions in the past during two Interventional activities, for example:

When RECASTING	When PROMPTING
1.React immediately to the students' errors with the past 2.Reformulate students' incorrect Utterances 3.Do NOT comment on the grammaticality of students' incorrect utterances. 4.NEVER push students to correct their ungrammatical utterances. Always provide corrections YOURSELF.	1.React immediately to the students' errors with the past 2.Repeat the student's incorrect utterance either as whole with rising intonation or partly by zooming in on the error. 3.Provide students with CLUES that may help them to SELF-CORRECT. 4.NEVER provide the correct answer. Always push students to self-correct.

To summarize, the past tense and questions in the past were chosen because they represent different levels of grammatical difficulty, are a challenge for most learners, and are heavily influenced by the L1 of the participants of the present study.

The Instructional Intervention

The instructional intervention consisted of two 120-minute sessions distributed over two weeks. During the instructional sessions, the participants engaged in two communicative tasks (one per session), which were designed to promote the use of the simple past and questions in the past. This was done to ensure that the learners were presented with opportunities to hear and produce output rich in the targets of interest while engaged in a genuinely communicative activity. During the student-fronted portions of the activities, the teachers in the CF groups provided either recasts, prompts, or a combination of the two in response to errors in past verb forms and questions. The teacher of the control group ignored past tense errors, instead reacting to content. No instruction on the simple past or questions in the past prior to the intervention was conducted because (1) learners at this level already possess the necessary knowledge about the simple past and questions having been exposed to it throughout their elementary and high school careers, and (2) the goal of this research was to see if learners notice feedback delivered in the classroom.

The two activities were adapted from *Bridge to Fluency: Speaking (Book 1)* (Gatbonton, 1994). For the first activity (Alibi), the students were told that a crime was committed last Saturday between 6 a.m. and 6 p.m. and that they all were suspects in that crime. Their task was to work in groups of four to create a story about their whereabouts on the day in question. No restrictions were placed on the story line they were to create with the only objective being that everyone in the group had the same story. This was important for after the stories were created, members of the groups were interrogated separately about their weekend activities by the rest of the class to determine if the four had in fact spent the weekend together and whether their alibi held. The aim here was to first, have the students use the simple past to come up with actions depicting past events (in their alibis) and second, to push them to probe the accuracy of the activities and events surrounding them by posing questions in the past.

Procedure

In the first week of classes (Week 1), all the participants completed the beliefs questionnaire. Then, in Week 4, immediately prior to the instructional intervention, the pre-test was conducted. In the remaining two hours of the lesson (in Week 4), the students engaged in the first activity designed for the study (i.e., Alibi). The immediate recall was executed during the activity, followed by the lesson reflection at the end. The lesson in Week 5 began with the second activity (i.e., Accidents), which lasted two hours. Again, the immediate recall was administered and the learners were asked to reflect on the lesson by its end. In the last hour of the class, the post-test was held. Eight weeks later (Week 13), the delayed post-test was administered.

Data Collection Tools

Data on noticing were collected by way of two measures: (1) immediate recall and (2) lesson reflection sheets filled out at the end of class time. Following Mackey (2006), the lesson reflection sheet was designed to elicit the participants' impressions about the learning they did in class and to serve as an additional check of the noticing data obtained via the immediate recall. In these reflections, the learners

were asked to complete a table by recording: (1) the language forms or concepts (including grammar, vocabulary, and pronunciation) they noticed in a given lesson and (2) whether these items were new to them. The amount of space provided for writing was equal for each linguistic form and the numbered points facilitated reporting of individual items. The learners were given between 5-10 minutes at the end of each lesson to complete the table, which they could do in English.

Learner Beliefs about CF

To uncover learner beliefs about corrective feedback, a two-part questionnaire was created. In Part 1, demographic information was gathered. Part 2 of the questionnaire contained 40 statements dealing with various aspects of CF based on the theoretical and empirical findings in the CF literature (e.g., Horwitz, 1988; 1999; Schulz, 2001; Kartchava, 2006; Mohamed Hassan Mohamed, 2011). Specifically, these touched on expectations for feedback and its importance, as well as the timing, amount, mode, and the manner in which CF should be delivered. Opinions about the two corrective techniques of interest (recasts and prompts) to this research were also included. On the scale of 1 to 5, where "1" indicated strong disagreement and "5" strong agreement, the participants were asked to indicate the degree to which they agreed with each statement.

Data Analysis

Coding of Noticing

The percentage noticing scores were calculated by dividing the total number of times a learner reported noticing by the total number of recall instances provided. These were then converted into percentages by multiplying the resulting score by 100. Such analysis was carried out for each target (past tense and questions) and feedback condition. The scores were used to determine the differential noticing of recasts, prompts, and a mixture of the two. To see if there is a relationship between the learners' beliefs and their overall noticing of CF, Pearson analyses of correlation between each learner's factor and noticing scores were conducted.

Coding of Tests

To measure changes in the targe-tlike usage of the past tense. The total number of correct verbs supplied on each test was divided by the maximum score of 10. Two types of analysis were done to measure learners' ability to form questions. First, each learner was assessed for a developmental stage, according to Pienemann and Johnston's (1987) scale for question development. To ensure accuracy in the scoring, another rater scored a representative portion for each of the tests; the inter-rater reliability was 98% based on simple agreement. A mixed-design two-way ANOVA with repeated measures was used to assess differences in accuracy scores between the recast group, the prompt group, the mixed group and the control group across three testing times.

Learner Beliefs

To determine what language learners believe about CF, their responses on the Part 2 of the beliefs questionnaire were subjected to a factor analysis, a statistical technique used to examine interrelationships among original variables. The analysis was conducted to examine possible common themes that would

emerge in the participants' beliefs as a group (Field, 2005). An exploratory factor analysis was chosen because there is currently no established theory as to what and how many factors underlie ESL learners' beliefs about CF (DeCoster, 1998). In order to determine to what extent the confirmed factors distinguish between learners in all conditions, average scores for each learner were generated to represent values for the identified beliefs and to be used in subsequent analyses (Pett, Lackey, & Sullivan, 2003). Hence, because in the beliefs questionnaire utilized in this study each category on the scale represented a numerical value (in this case, "1" indicated strong disagreement and "5" strong agreement) it was possible to calculate arithmetic means for each learner and each item. This process allowed for the identification of the impact of beliefs on the noticeability and effectiveness of CF.

Results

The purpose of this section is to report the findings as they relate to each of the questions investigated in this research mentioned earlier.

Noticing of CF

To determine the first research question, namely if the provision of CF promotes noticing of form, the experimental groups' percentage noticing scores were computed and compared. Table 2 presents the descriptive statistics for the reported noticing. The results indicate that while the learners in all the groups were able to notice the feedback provided, the learners in both the Prompt and Mixed groups were able to notice the teacher's corrective intent more than the learners in the Recast group.

Table 2 Reported noticing means across three groups (maximum score: 100%)

Group	*n*	*M* (%)	*SD*
Recast	29	6.55	6.67
Prompt	23	21.70	22.17
Mixed	20	27.90	23.87
Total	69	19.31	21.17

To establish whether the differences in the groups' noticing rates were significant, a one-way analysis of variance (ANOVA) was conducted and showed a statistically significant group difference, F (2, 74) = 12.4, p = .01). Despite reaching statistical significance, the effect size measuring the difference in mean scores between the groups was quite small (eta squared = .025). Post-hoc Tukey pair-wise comparisons indicated that the Recast group reported significantly less noticing overall than the Prompt (p = .006) and Mixed (p <.001) groups. The difference between the Prompt and Mixed groups was not statistically significant (p =.213).

While the noticing results for questions were similar to those for the past in that the learners in the Mixed (n = 43) and Prompt (n = 32) groups reported more noticing of this feature than did those in the Recast group (n = 11), the number of recasts noticed in the Mixed group was proportionally higher (17%) than that of prompts, likely signifying that the presence of prompts may have made the corrective intent of recasts more salient in the classroom.

Table 3 CF immediate recall instances and learners' reports of noticing

Group	*Immediate recall instances*			Noticing *(maximum score : 100%)*				
	Simple *Past*	*Questions*		*Simple Past*			Questions	
	n	*n*	*n*	*M* (%)	*SD*	*n*	*M* (%)	*SD*
Recast	13	12	15	3.47	4.37	12	3.22	4.66
Prompt	12	12	36	11.77	11.76	32	10.33	11.88
Mixed - Recast	11	9	37			23		
				17.29	11.51		11.88	14.91
Mixed - Prompt	9	8	37			18		
Total	45	41	125	10.19	11.12	85	8.00	11.238

In sum, the results showed differences in reported noticing across the groups. Specifically, the Recast group reported less noticing of CF for the past tense than did the Prompt and Mixed groups. The Recast group, also, reported less noticing of CF for questions than did the Mixed group. In terms of the grammatical target, the past tense was noticed significantly more than questions.

Learner Beliefs

To answer the final research question - *Do learner beliefs about CF mediate their noticing and learning of L2 norms?* – Pearson correlation analyses were undertaken. For such analyses to take place, an exploratory factor analysis was performed on the 40 items on the beliefs questionnaire administered to 54 participants to determine their perceptions about the role of corrective feedback in the study of languages.

The items were subjected to principle components analysis (PCA) using SPSS Version 17. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .30 and above, which signified significance of the factor loadings (Child, 2006) and is in line with the previous research on learner beliefs (Loewen *et al.*, 2009). However, based on a more conservative approach utilized by another factor analysis, expert (Pett *et al.*, 2003), it was decided to suppress factor loadings of less than .40 to ensure a more obvious pattern matrix with identifiable themes. The Kaiser-Meyer-Oklin value was .82, exceeding the recommended value of .6, and Bartlett's Test of Sphericity reached statistical significance ($\chi 2 = 2968.542$, $p < .001$), supporting the factorability of the correlation matrix (Pallant, 2007; Field, 2005). Cronbach's alpha for the total 40-item scale was .84.

Among the items that were loaded on Factor analysis, the five items (Questions 3, 15, 33, 34, and 39) represented the belief that the best way to provide CF is through prompts, which push learners to self-correct, and one item (Question 36), with the lowest loading score, attributed the importance to recasts. Because the majority of the items with high loadings spoke of prompts as the corrective techniques of choice, this factor was named "Prompts as CF method". In order to answer Research Question 3, average scores per factor for each learner needed to be computed. However, this proved difficult because Factor 1 and Factor 2 are composed of items that diverge in terms of concept. That is, Factor 1 is composed of the items that speak to the importance/ expectation of CF and recasts as the method of treating errors. Similarly, while the majority of the items in Factor 2 is centered on prompts as the desired CF technique, one of the items, albeit with the lowest loading score, speaks of recasts.

With the internal consistency assured, each learner's average score for each belief item was calculated and compiled in terms of group means (Table 30). The results indicate that regardless of the group they were assigned to, all learners see corrective feedback as important and expect to receive correction to oral errors in the language class. In terms of the preference for the feedback type, the students in all groups appreciate the usefulness of both recasts and prompts, but tend to prefer recasts over prompts. Finally, the issue of motivation and anxiety seems to be on the minds of all the participants, irrespective of group.

Table 4 Group mean belief scores (maximum score: 5.0)

Group	Importance of CF (Belief 1)		Recasts (Belief 2)		Prompts (Belief 3)		Affective consequences (Belief 4)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Recast	3.92	.47	4.15	.55	3.51	.61	4.15	1.36
Prompt	3.73	.76	4.17	.84	3.37	.92	3.79	1.37
Mixed	4.14	.83	4.03	.83	3.33	.96	3.68	1.51
Control	3.69	.57	4.33	.46	3.61	.74	4.15	1.35
Total	3.84	.69	4.31	.63	3.53	.79	4.02	1.40

Learner Beliefs and Noticing of CF

To determine a possible relationship between learners' reports of noticing of the L2 norms and their beliefs about CF, correlation analyses were performed to determine (1) if there is a relationship between the learners' beliefs about Belief 1 (Importance of CF), Belief 2 (Recasts), Belief 3 (Prompts) and Belief 4 (Negative consequences of CF) and their overall noticing scores, and (2) if such a relationship exits across the two grammatical targets of interest. The relationship between the overall noticing scores and the four beliefs was investigated using Pearson correlation coefficient and the results show that there was a weak, positive relationship between the overall noticing scores and Belief 2 (Recasts as CF), $r = .255$, $n = 79$, $p < .05$. Belief 2 helps to explain 6.5% of the variance in the respondents' noticing scores. This finding suggests that the more students believe in the effectiveness of recasts as a feedback technique, the more likely they are to notice its corrective intent.

Specifically, the participants believe in the importance of oral corrective feedback overall and expect the teacher to use recasts in response to an error. They also see a positive role for self-correction facilitated by prompts and are aware of the negative effects that CF can invoke. The correlation analyses between learners' reports of noticing and their beliefs about CF revealed a positive relationship between the overall noticing and the belief in the importance of CF as well as noticing and the belief in recasts as the effective feedback technique. There were, however, no significant correlations found between beliefs and the noticing of the two grammatical targets across the three groups. Finally, no significant relationship was found between beliefs and the test scores overall and across groups, suggesting that post-test scores for this sample are independent of beliefs.

Discussion

Noticing of CF

The first goal of this study was to determine whether the provision of CF promotes noticing and learning of L2 norms in the classroom (Research Question 1). The noticing results indicated that not only all the learners in the experimental groups were able to notice the feedback provided, the learners in both the Prompt and Mixed groups have been able to notice the teacher's corrective intent more often than the learners in the Recast group. This finding suggests that, if provided, learners are able to notice feedback, albeit in different amounts. While the least amount of feedback was noticed by the Recast group (6.72%), the learners in the Prompt (22.27%) and Mixed (31.17%) groups noticed significantly more. The low noticing rates of recasts may be attributed to any of the limitations associated with this corrective move that have been unearthed in the literature thus far: error type (Mackey *et al*., 2000), length (Philp, 2003), explicitness (Ammar & Sato, 2010a), proficiency level (Philp, 2003; Ammar & Spada, 2006), working memory capacity (Mackey *et al*., 2002), and attention switching ability (Trofimovich *et al*., 2007; Ammar & Sato, 2010a). Hence, despite the shortness of the treatment, the learners in the Mixed condition were able to notice the corrective nature of recasts more than their counterparts in the Recast group. The likely reason for this has to do with recasts being provided alongside prompts, a move that might have made the learners aware that the accuracy of form was one of the foci in this classroom.

Learner Beliefs

In order to answer the second research question - *Do learner beliefs about CF mediate their noticing and learning of L2 norms?* - an exploratory factor analysis was performed to determine the respondents' perceptions about the role of corrective feedback in the study of languages. The factor analysis conducted on the learners' responses to the 26 items in the Beliefs' Questionnaire identified three factors about corrective feedback that the participants deemed important: (1) Expectation and Recasts as a method of CF, (2) Prompts as a method of CF, and (3) Negative Consequences of CF. Specifically, the results of the current study suggest that learners believe in the importance of oral corrective feedback and expect the teacher to provide the correct form in response to an error. They also feel that self-correction aids in language acquisition, but count on teacher's help to signal the presence and/or locus of the error. The participants are, however, aware of the negative consequences that CF can carry, affecting motivation/interest in learning L2 and creating feelings of anxiety. Possible reasons for each of the three factors are detailed next.

Summary and Future Research

This quasi-experimental study sought to investigate the often assumed yet little investigated relationship between the noticing of corrective feedback and L2 development in relation to learner beliefs about error correction. Specifically, it aimed to (1) uncover the noticeability and effectiveness of three CF techniques (namely, recasts, prompts, a combination of the two) (2) to determine whether learner beliefs about CF mediate what is noticed and learned in the language classroom. During the experimental intervention, although all the groups participated in meaningful practice that provided and naturally elicited the targeted structures, only the experimental conditions received CF in response to their production problems with the grammatical features investigated. The type of CF provided depended on the teacher's natural corrective strategy. While noticing of CF was assessed through immediate recall and questionnaire responses, learner beliefs about CF were probed by means of a 40-item questionnaire. Learning outcomes were measured by way of picture description and spot the differences tasks administered through a pre-test, post-test, and delayed post-test design. Post-intervention interviews were also conducted with a number of learners (n = 20) and the three teachers with the purpose of gathering their perspectives on the study and the tools used. The immediate recall protocols were analyzed for evidence of noticing, based on which overall as well as per target percentage noticing scores were computed for every learner.

The direct link between noticing and learning could not be unequivocally established. While the inferential statistics suggested a minimal relationship between noticing and past tense scores, especially if the CF was provided with recasts, but no relationship between noticing and questions scores, the qualitative analyses pointed to an association between noticing and test scores (on both targets) for some learners and gains without noticing for others. These (qualitative) results suggest that noticing may be helpful for some learners to acquire grammatical targets, but it does not appear to be universally necessary. However, this interpretation needs to be viewed with caution in light of the obtained test scores and instruments used to measure noticing. Specifically, the amount of noticing reported on the immediate recall measure may have affected what was and was not noticed. The fact that the "red card" was flashed after a select number of corrective episodes instead of after every episode (Lyster, 2004) might have decreased the saliency of the tool and prevented the participants from reporting more noticing. This, however, should not have affected the treatment conditions differently because the number of the immediate recall stimuli was equally distributed between the groups. Yet, it is possible that because the students were required to write down, as opposed to orally verbalize, their thoughts during the immediate recall protocols they were unable to either express their thoughts in that format or to provide full descriptions of their ideas. This could have been exacerbated by the limited training in the usage of the tool as well as the manner in which the task was carried out (as a whole class versus individually). In spite of these limitations, this procedure allowed for a maximum participation and was easily integrated within a regular lesson. Furthermore, as discussed earlier, individual differences might have affected the extent to which the participants were able to notice the supplied CF. Conversely, the tasks used in the intervention could have aided in focusing the learners' attention on the targets under investigation. Clearly, additional studies into the relationship between CF, noticing, and learning are warranted. These should consider different populations, proficiency levels, grammatical targets, measures as well as the possible effects of psycho-cognitive (e.g., aptitude) and affective (e.g., anxiety, motivation) differences in the learners' performance. They should take into account the complexity of relating noticing and learning of form (e.g., Mackey, 2006) and establish sound practices of measuring, coding and linking noticing to learning.

In relation to the beliefs about CF, the participants' responses centered on four underlying constructs: (1) the importance of oral corrective feedback, (2) the expectation for the teacher to provide the correct form in response to an error, (3) the role of self-correction in language acquisition, and (4) affective consequences that CF can carry. While interesting, these results need to be interpreted with caution in light of the limitations associated with the tool used to identify the beliefs. This is because the participants had to respond to the questionnaire items identified by the researcher, which cannot presume to fully

capture what the participants believe about CF. Furthermore, the items could have been misunderstood by the participants, producing non-representative findings as a result. This could be corroborated by the fact that only 26 instead of the original 40 items yielded the belief system outlined here. Despite these shortcomings, questionnaires represent the most common tool to identify beliefs and allow for a large number of people to be surveyed at once. Furthermore, the post-treatment learner interviewers helped to interpret the articulated beliefs. Future research into the learner beliefs about CF would benefit from questionnaires that include an open-ended component (e.g., Loewen *et al*., 2009) to allow the participants to express their opinions on the topic. Incorporating qualitative-type interviews and/or observations are also likely to provide a more detailed picture of learners' beliefs.

In terms of the link between beliefs and noticing, only the first two beliefs (importance of CF and Recasts as CF technique) were associated with noticing of CF. That is, the more learners believed in the importance of feedback, the more likely they were to notice it in the classroom, especially if the CF was in the form of a recast. A major concern with this finding is that while it represents the opinions of all the participants in the study, it is not clear what the results would have been had the learners assigned to the Control group were given a chance to receive feedback on form. Finally, no relationship was found between beliefs and test scores, suggesting that the test results were not mediated by the beliefs these learners held about the role of CF. Conversely, lack of the connection between beliefs and test scores may have to do with the fact that no analyses could be run on the delayed post-tests for it might be possible that in order for beliefs to affect test outcomes more than four hours of instruction is necessary. As such, future investigations into the relationship between beliefs and noticing of CF as well as beliefs and learning need to account for the effect that the length of instruction may generate. They would also benefit from ensuring that the data are not contaminated in between the testing sessions by designing studies that naturally lend themselves to the research context and allow for changes in the timing of the planned evaluations.

The findings of this investigation not only contribute to our understanding of the relationship between noticing of corrective feedback and test scores, but they also provide a description of what learners believe about feedback and how these beliefs mediate the noticeability and effectiveness of in-class CF. More specifically, they provide evidence that the choice of the target type and the CF technique facilitate the noticeability and, in the case of the target, effectiveness of CF. Furthermore, this study suggests that positive attitudes towards CF can positively affect such noticing in the classroom. Finally, while there is still no clear evidence that test scores depend on the noticing of feedback, this research succeeds in reiterating the facilitative role of CF in language acquisition in general and in terms of the past tense scores in particular. Of course, supplementary and continued research on the topic will bring the field closer to untangling the complex relationship of noticing and learning and the many factors that may influence the effect that CF has on language development.

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