

Error Correction in Socio-Cultural Perspective: Feedback and Noticing in ZPD

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Abstract

Researchers have suggested that interactional feedback which is between teacher and learner during their writing is associated with L2 learning because it prompts learners to notice L2 forms. This paper reports a classroom-based study that investigated the role of feedback in socio-cultural theory. In this study, 12 EFL learners performed on three writing tasks and were provided with a three-stage procedural corrective feedback which started with metalinguistic implicit feedback and moved to metalinguistic implicit-explicit feedback and finally explicit correction by the teacher. Feedback was provided to learners in response to their written problems with past tense forms, subject-verb agreement, and countable and uncountable nouns. Learners' noticing of their written errors was assessed through verbal recall protocols based on their journals. Their attitude towards the procedural feedback was also checked through their reports. The findings suggested that despite being at the same level of proficiency as determined by the placement test of the language school, each learner noticed the errors at one of the three stages of the implicit-explicit feedback based on his/her ZPD.

Keywords: Error correction, implicit and explicit feedback, ZPD, noticing, socio-cultural theory, procedural feedback

Introduction

Socio-cultural theory, which was originally suggested by Vygotsky, has influenced the domain of EFL/ESL learning to a large extent. In this theory, the core concept is that "human mind is mediated" (Lantolf, 2000, p. 1) and it holds that as human beings, we utilize physical and symbolic artifacts to "establish an indirect, or mediated, relationship between ourselves and the world" (p. 1). In the socio-cultural theory, this external mediation is then believed to become internalized. Therefore, there came along another legacy

within the theory which is referred to as 'zone of proximal development' or ZPD. This zone is in fact, where the "social forms of mediation develop" (Lantolf, 2000, p. 16), but not in the sense of a physical location in brain but rather as "a metaphor for observing and understanding how mediational means are appropriated and internalized" (p. 17).

Vygotsky (1978) defined ZPD as "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). ZPD has played important roles in a variety of research domains such as psychology, education, and applied linguistics.

The implication of the socio-cultural theory and the ZPD concept in language teaching has been the growing emphasis that feedback and negotiation have received in the discipline along with the belief that both lead to a collaborative development of L2 interlanguage. Therefore, teachers are no more left with the simple question of whether or not to correct the errors of their students, as error correction seems to be substituted by feedback, but rather with a plethora of other questions regarding the 'how' of providing the feedback.

As a result, the manner through which teachers provide feedback or the way they correct and deal with the students' errors or problems seems to be an important issue in language teaching and learning. This implies that research on corrective feedback and its relation to L2 development is substantial and as a matter of fact, a huge number of studies have been carried out on implicit versus explicit way of error correction or amount, type, and timing of the feedback.

As an example, Long (1996) asserted that recast provided an implicit correction strategy that assisted acquisition in a way that learners could compare their incorrect utterances with the correct input. However, Iwashota (2003) carried out a research on recast focusing on two structures and the results indicated that recast had positive influence on only one of the structures. Nevertheless, Kim and Mathes (2001) and Nagata (1993) asserted that students preferred more explicit feedback. On the other hand, Sheen (2004) reported that in various teaching contexts (i.e., Canada immersion, Canada ESL, New Zealand ESL, and Korea EFL), different corrective feedback was observed; as an example, explicit correction was reported to be rare in Canada ESL classes but frequent in New Zealand ESL ones. Consequently, the findings of the studies on the type of corrective

feedback seem to be divergent and there appears to be a controversy regarding which one is more effective; the explicit or implicit corrective feedback.

To adhere to one of these stances, one needs to more accurately explain the differences between the two modes of corrective feedback. Gass and Mackey (2007, pp. 181-182) maintain that explicit feedback includes corrections and metalinguistic explanations and highlight some implicit forms of feedback such as:

- Confirmation checks: expressions that are designed to elicit confirmation that an utterance has been correctly heard or understood; for example, *'Is this what you mean?'*.
- Clarification requests: expressions designed to elicit clarification of the interlocutor's preceding utterances; for example, *'what did you say?'*.
- Comprehension checks: expressions that are used to verify that an interlocutor has understood the other; for example, *'Did you understand?'*.
- Recasts: a rephrasing of an incorrect utterance using a correct form while maintaining the original meaning. Mackey, Oliver, and Leeman (2003, p. 36) provide the following example for recast:

*L: Why **does** the aliens **attacked** the earth?*

*T: Right. Why **did** the aliens attack earth?*

Gass and Mackey (2007) assert that feedback may help to make problematic aspects of learners' inter-language salient and give them more opportunities to focus on their production or comprehension. However, in clarifying the effective role of feedback in ZDP, Aljaafreh and Lantolf (1994) maintain that assistance has to be gradual with no more help provided than is necessary, since they believe that over-assistance decreases the student's ability to become fully self-regulated. They add that, "The idea is to offer just enough assistance to encourage and guide the learner to participate in the activity and to assume increased responsibility for arriving at the appropriate performance" (p. 469). Lantolf and Thorne (2007) commented on Aljaafreh and Lantolf's study and mentioned that, "This process is dialogic and entails continuous assessment of the learner's ZPD and subsequent tailoring of help

to best facilitate developmental progression from other-regulation to self-regulation" (p. 215).

According to Lantolf and Thorne (2007), ZPD has played an important role in shifting the trends in education and psychology. They further elaborate that contrary to the traditional tests and measures that only tapped into the level of development already achieved and possessed, the ZPD is forward-looking in assessment through its claim that what one can do today with assistance is an indication of what one will be able to do independently in the future. They finally conclude that ZPD-oriented assessments provide developmental achievement as well as developmental potential. The other outstanding feature of ZPD, as mentioned earlier, is that cognitive development results from social interaction at the initial stage, meaning that cognition is first developed interpersonally. As the next step, such an interpersonal activity becomes internalized and thus, the foundation for intrapersonal functioning. As Lantolf and Thorne (2006) maintain, the socio-cultural theory research links the ZPD together with notions such as scaffolding and assistance. One can infer that the type of feedback a teacher uses can determine the type of assistance and scaffolding he/she provides the learners with and the question remains as of which type results in a better internalization of the target forms.

Wretsch (as cited in Donato, 1994) describes scaffolding as "a dialogically constituted inter-psychological mechanism that promotes the novice's internalization of knowledge co-constructed in shared activity" (p. 41). Applying this concept to the issue of corrective feedback, it can be deduced that through the process of error correction, negotiation, and interaction, learners' attention will be directed toward the problematic point. As a result, errors are noticed and learners attempt to modify their output.

Clearly, claims about attention and noticing are important for SLA and error correction. Schmidt (1990, 1993) and Robinson (1995, 2001, 2003) argue that learners must consciously notice input in order for it to become intake. This claim is generally referred to as the Noticing Hypothesis and was proposed by Schmidt (1990, 1993) and explored in a number of empirical studies (Izumi & Bigelow, 2000; Mackey, 2006; Truscott, 1998). Long (1996) mentions that interaction encourages learners to notice and thus, causes language development. As a result, feedback and noticing are two crucial elements in language development.

Since the role of feedback is more obvious when students produce output, feedback on speech or the written production of the students has

been investigated in SLA discipline. Hyland and Hyland (2006) believe that feedback is a central aspect of L2 writing and that there are many ways for giving feedback in writing but assert that some strategies are not very effective for learners' L2 development. Ellis (2009) tries to investigate error correction systematically and elaborates on advantages and disadvantages of the various ways of providing corrective feedback. Table 1 shows the typology of error correction in L2 writing which is adapted from Ellis (2009).

Table 1 – Typology of corrective feedback in writing adapted from Ellis (2009)

| Feed back type | Definition | Advantages | Disadvantages |
|-----------------------|---|--|--|
| Direct | The teacher provides the student with the correct form such as crossing unnecessary words, inserting missing words, and writing the correct form above or near the erroneous form. | It is a good way for low level of proficiency according to Ferris & Roberts (as cited in Ellis, 2009). | It requires minimal processing on the part of the learner. |
| Indirect | The teacher indicates that the student has made errors without actually correcting them (e.g., by underlining the errors or placing a cross next to the line containing the error). | It encourages students to reflect about the linguistic form of their output and caters guided learning and problem solving (Lalande, as cited by Ellis, 2009). | Not stated. |
| Metalinguistic | The teacher comments on the learner's errors by 1) using some codes and either showing or not showing the exact place of the error, and 2) writing some details about the nature of the errors. | It causes deep processing. | Error codes: There is limited evidence that shows error codes help learners achieve greater accuracy over time. Writing explanation: It is time consuming for teachers. |
| The focus of feedback | The teacher selectively corrects one type of learner's errors, for example just articles (Focused). The teacher corrects all learner's errors (Unfocused). | Focused: Learners obtain a rich evidence of one type of error, therefore they reflect more. | Unfocused: One disadvantage of this type of correction is that processing all errors is too demanding for the learners. |

| | | | |
|---------------|--|---|---|
| Electronic | The teacher indicates an error and provides a hyperlink to a concordance file (either constructed or available by searching in Google) that provides examples of correct usage. | The students self-correct their errors. | It is useful only for experienced learners. |
| Reformulation | It involves the teacher (native speaker) rewriting the student's text in such a way as 'to preserve as many of the writer's ideas as possible, while expressing them in his/her own words so as to make the piece sound native like' (Cohen, 1989, p. 4). The writer then revises by deciding which of the native-speaker's reconstructions to accept. | It puts a lot of burden on students to identify the changes to the reformulated text. | It is designed to draw learners' attention to higher order stylistic and organizational errors (Sachs & Polio, as cited in Ellis, 2009) |

As a result of all that was mentioned above, the goal of the current study was to empirically explore the effect of gradual error correction from a more implicit feedback to a more explicit one on the linguistic accuracy of learners' writing. That is, the teacher started with the most implicit form of corrective feedback and in the case the learners were not able to identify the problem and correct it, the teacher would move to a more explicit form of feedback. The study addressed the procedural corrective feedback and its progression from teacher- to learner-regulation within the learners' ZPD. Thus, the main objective of this study was to understand whether this approach to providing feedback had any developmental effects or not. Therefore, the following research questions were raised:

- *Does procedural implicit-explicit corrective feedback through continuous learner-teacher interaction have any effect on the linguistic accuracy of the learners?*
- *What is learners' feeling towards procedural implicit-explicit corrective feedback?*

Method

Participants

The participants in the study were 12 Iranian EFL learners who were all female adults aged between 20 to 40 years old in an intact group. They enrolled in a six-week pre-intermediate conversation class in a language school in Tehran. All the participants had gone through the placement test of the language school and therefore had more or less the same proficiency level.

Instrumentation

Data on the procedural feedback were collected through four instruments in this study in addition to the course book which was part of the requirements of the language school; writing tasks for each unit of the course book, learning journals, oral stimulated recall protocols, and a writing task as the final assessment. In the current study, learning journals were developed to elicit the learners' errors identification (noticing) by the help of the teacher's implicit-explicit feedback on their writings. Oral stimulated recall protocols were used to carry out continuous teacher-learner interaction and scaffolding. Moreover, in order to answer the second question of the research, students' reports on their feelings regarding the procedural implicit-explicit corrective feedback were collected. The details of these instruments and how they were utilized will be discussed in the procedure section below.

Procedure

In order to be able to answer the research questions of the study, multiple methods of data collection were utilized and both quantitative and qualitative analyses were employed. Data was collected through a classroom-based study and over a period of one and a half months and there was no selection or homogenization procedure as the researcher conducted the research in one of her intact classes. Moreover, the study did not focus on comparison groups, as each individual's change and improvement was the main concern of the study.

The course of study consisted of six hours of instruction per week with Interchange third edition as the main course book. This book is designed in a way that after grammar points and conversations, there is a writing task in each unit on which the students have to write a paragraph. However, since the aim of the book is improving the speaking ability of the learners, most of the time writing tasks are ignored especially in conversation classes. The grammatical points that are the focus in the writing tasks are the same as the ones introduced in the unit, for instance 'past tense' and 'used to' in unit 1, 'comparative and evaluation' in unit 2, 'countable and uncountable nouns' in unit 3, and 'present perfect and adverbials' in unit 4.

During the treatment period, students wrote three writings on 'the things you used to do as a child', 'write a letter to the newspaper editor about the traffic problem in the city, and 'write an e-mail and compare your old apartment to the new one'. The students were asked to write 50 to 60 words on the first writing and 100 to 110 on the second and third writings and the procedure of providing corrective feedback started with implicit correction after the writings were collected and reviewed by the teacher.

The procedural feedback which was employed in this study ranged from implicit, in the form of formulaic hints, to explicit corrective feedback by the teacher. Thus, in this study all the errors were not corrected by the teacher at once and in one session to avoid the negative impact of over-assistance discussed in the previous section. Moreover, it has to be mentioned that in this study scaffolding was conceived as the interaction or the dialogue between the teacher (the external mediator) and the learners with the aim of correction and was not based on the definition of Donato (1994) who extends the scaffolding framework to peer interaction and suggests that learners can scaffold one another or mutually construct assistance in much the same way that experts scaffold the performance of novices. The interaction or the scaffolding was carried out through oral stimulated recall protocols as fully explained later in this section. Moreover, noticing, as the other focus of the study, was operationalized in terms of students' report of their error identification through learning journals which will be discussed hereunder.

The feedback the teacher provided on the writings was unfocused based on the typology by Ellis (2009), in other words, the teacher corrected all types of errors that the students made in their writings. However, the teacher-student interaction which comprised the scaffolding after the feedback, mainly focused on tenses, especially past tense, subject-verb agreement, and the use of the correct form of the verbs, articles, modal verbs, and countable and uncountable nouns. The feedback was carried out in a nine-

stage procedure which moved from implicit to explicit correction. The details of the procedure are presented in Table 2 below.

Table 2 – Regulatory scale: procedural implicit to explicit corrective feedback used in the study

| Stage | Description |
|-------|--|
| 1 | In studying each unit, the learners had to write a piece of writing which was related to the grammatical points of the unit. |
| 2 | The teacher collected all the writings. |
| 3 | The teacher just wrote below each writing how many errors each learner had. In addition, the teacher wrote some general rules and formulas regarding the errors. That is, the teacher did not resolve the problematic points and did not write the corrected form (detail is explained below). |
| 4 | The teacher returned the students' writings which included the implicit feedback. She asked them to read their writings, find the errors, correct them, and hand in the writings in the following session. |
| 5 | The following session, the teacher would collect the papers and check whether the students had identified their errors or not. <ol style="list-style-type: none"> 1- If they had identified and corrected their problems, the teacher would give approval. 2- If the errors had gone unnoticed or the learners had not been able to find all their errors, the teacher would guide them into the next stage. |
| 6 | In the next stage, the teacher tried to give some explicit hints for correction such as highlighting the number of the line in which the error had appeared. Then the writings were returned to the students and the same procedure was followed. |
| 7 | If the learners could not yet identify their errors, in the next stage the teacher would explicitly write the correct form. |
| 8 | Students were asked to note down their errors in the journal that the teacher had provided them with and to keep all journals until the end of the semester (See Appendix). |
| 9 | The students were asked to give a verbal report based on their journals. They were also encouraged to provide a written report about their feelings toward this procedure. |

The ZPD of the learners are not the same. Some learners can detect the error by one implicit hint and correct it immediately. This group of learners can manage a task immediately with the teacher's help. However, some learners need more explanation and explicit hints from the teacher in order to find and correct all their problems. Such learners need to go through more number of stages. Through Figure 1, the researcher has attempted to demonstrate the different stages of the procedural corrective feedback as well as the different layers of learners' capability to accomplish the task of

error correction. Therefore, it is assumed that the degree of implicitness or explicitness of the corrective feedback corresponds with the learners' capability or ZPD. As it is demonstrated in Figure 1, learners have different ZPDs; some learners at stage one (the inner circle) can notice and correct their errors through the most implicit type of feedback, while others need more help to develop their inter-language (the outer circles).

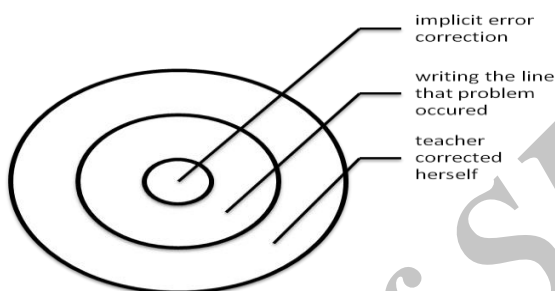


Figure 1 – Procedural implicit-explicit corrective feedback and the ZPD model of the study

The types of error correction that were used in this study were based on Ellis' (2009) typology as described below:

- 1- Metalinguistic implicit corrective feedback: The teacher provided some kind of metalinguistic clues at the bottom of the writings and provided some examples. This type of feedback was indirect as the teacher did not correct the errors. For example, the teacher would give some hints like a 'structure formula' followed by an example: (Modal + simple verb → I should go), (subject verb agreement → The house has two windows), (using the correct tense for talking about past → I had a good time when I was a child). (The detailed description of Stage 3 in Table 2)
- 2- Metalinguistic implicit-explicit corrective feedback: The teacher highlighted the line which contained the error; she neither underlined the error itself nor provided the corrected form. Though still implicit, this stage was a bit more explicit than the previous one as the location of the error (the line) was highlighted for the student.
- 3- Explicit corrective feedback: The teacher would directly and explicitly correct the error by writing the correct form for the student.

Figure 2 shows the three-stage procedure for correcting the grammatical errors used in this study. It has to be noted that methods of implicit and explicit correction were taken from Ellis' error typology discussed earlier.

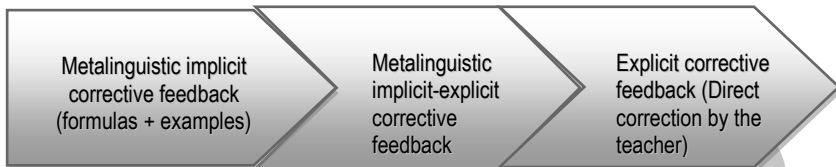


Figure 2 – The procedure of corrective feedback utilized in the study

After the students wrote their paragraphs and the teacher gave the metalinguistic implicit feedback, at the beginning of the following session there was an exchange of writing between the learners and the teacher. The teacher explained the formulas she had written on the papers and helped the learners in case there was any confusion. The learners had to write down their errors in the learning journals they were supposed to keep, the format of which the teacher had provided them with. According to Allwright (1984), learning journals should be designed in a way to empirically examine learners' reports on L2 classroom. The learning journals were introduced on the first day of the classes before the beginning of the experiment. As part of the regular instructional technique, the learners filled out and collected the journals. In other words, after each feedback procedure, the learners filled out the journals and this procedure was repeated for all the three writing tasks.

The learning journals provided opportunities for the learners to record: (a) which language forms or concepts they noticed including grammar and spelling; (b) in which stage of teacher feedback they noticed their errors, that is, by the first meta-cognitive implicit, the second meta-cognitive implicit-explicit, or the third explicit corrective feedback. Therefore, noticing was operationalized as the learner's report of identifying their errors by the help of metalinguistic implicit codes or implicit-explicit feedback that the teacher provided at the end of their writings. The data on noticing were collected through two procedures; (a) Filling out learning journals after identifying all errors by the students; (b) Conducting oral stimulated recall protocols (Mackey & Gass, 2005).

To put it in other words, the oral stimulated recall protocols were the ground for the teacher-student interaction or scaffolding through which the teacher-researcher tried to encourage students' noticing. The learner-teacher interaction lasted for the three writings and gradually the learners' noticing and attention to different linguistic aspects increased as discussed in the next section.

According to Mackey and Gass (2005), there are essentially two types of verbal reports that are used: recalls and think-aloud. They maintain that think-aloud involves reporting the event as it is occurring, and as such it involves somewhat a stream of consciousness. The aim is to explore the thought processes of a learner as he or she is doing a task. Whereas think-alouds are generally conducted during the activity, Mackey and Gass maintain that recalls are conducted following an activity. Recalls can be done with some stimulus (e.g., a video or audio of the event that the participant is reporting on or a written paper that a learner has written) or without them. In the latter case, there is no stimulus to rely on; only the individual's recollection of the event with the same focus on obtaining the thought processes at the time of the original event.

In addition, after the collection of the recall protocols, the teacher asked the students to write their feelings about the procedural corrective feedback. Moreover, these written reports were used to elicit the learners' impressions about the interactions in the classroom. Learners reported the noticed feedback which they identified and corrected by the implicit clue of the teacher. As the final assessment, the topic of task 2 which was related to the grammatical points of Unit 2 and the usage of 'Wish' was given to the learners since they had made the most errors in that unit (see Figure 3 in the following section). At the end, the participants also recalled their feelings regarding the interactional and procedural implicit-explicit feedback in a report.

Results

Results of Analyzing the Students' Writings

The objective of this study was to examine the effectiveness of implicit-explicit feedback procedure and to increase the noticing of the errors by the learners in one pre-intermediate classroom since the activity was highly time-consuming. Figure 3 demonstrates the number of students' errors in the three

writings as well as the final assessment. As Figure 3 shows, the number of the participants' errors dropped from the second to the third and again to the final writing. The reason for the fact that the students committed much fewer errors in the first writing was that they wrote only 50 to 60 words in the first writing but 100 to 110 words in the subsequent writings. This difference in the number of words was set by the researcher deliberately since she did not want the first writing task to be demanding for the students.

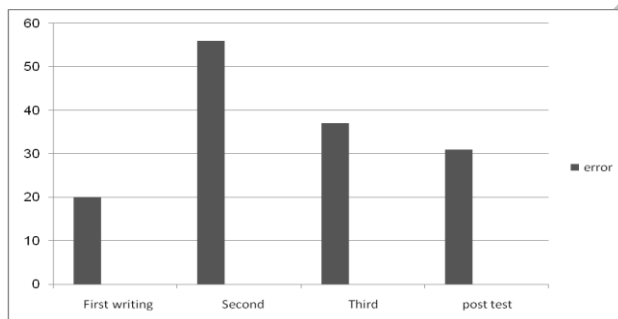


Figure 3 – The frequency of errors in all the writing tasks

Table 2 summarizes the stages of corrective feedback and the learners' success to notice and correct their errors for each of the writings. Value 1 in Table 2 demonstrates the success and value 0 the failure of the student to identify and correct the error. When no value is reported, it means that there was no error to be corrected. Note has to be made that the first, second, and third stages of feedback refer to metalinguistic implicit, metalinguistic implicit-explicit, and explicit corrective feedback, respectively. In addition, the last two columns in Table 2 illustrate the number of learners' errors in the second and the final writing for the purpose of comparison. The reason why the first writing was not compared with the final assessment was that the two writings were not equal in terms of the number of words written. Moreover, since the students had the most number of errors in the second writing task, the same task was given to them again as the final assessment for a sound comparison.

Table 2 – Stage of corrective feedback and learners' success/failure in noticing and correcting the errors

| | Writing 1 | | | Writing 2 | | | Writing 3 | | | Number of errors in the 2 nd and final writing | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|---------------|
| Feed-back stage | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd | 2 nd Writing | Final writing |
| Students | | | | | | | | | | | |
| S1 | 1 | | | 0 | 1 | | 1 | | | 2 | 2 |
| S2 | 0 | 1 | | 0 | 0 | 0 | 1 | | | 9 | 5 |
| S3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| S4 | 0 | 0 | 0 | 1 | | | 1 | | | 8 | 3 |
| S5 | 1 | | | 0 | 1 | | 0 | 0 | 0 | 10 | 1 |
| S6 | | | | | | | 1 | | | 0 | 1 |
| S7 | | | | 0 | 1 | | 1 | | | 5 | 1 |
| S8 | 1 | | | 0 | 0 | 0 | 1 | | | 7 | 2 |
| S9 | 1 | | | 1 | | | 0 | 0 | 0 | 1 | 2 |
| S10 | 0 | 1 | | 1 | | | 1 | | | 6 | 4 |
| S11 | 1 | | | 1 | | | 1 | | | 2 | 2 |
| S12 | 1 | | | 1 | | | 0 | 0 | 0 | 3 | 4 |

As the data for the first writing task demonstrates in Table 2, different students had different ZPDs. Students 1, 5, 8, 9, 11, and 12 appeared to have the same ZPD as they were able to notice their errors with the first and most implicit type of corrective feedback. Students 2 and 10 were also the same in terms of their ZPD as they both noticed their errors in the second stage of corrective feedback which included implicit-explicit feedback. Whereas students 3 and 4 were at the lowest ZPD and the teacher had to finally explicitly correct their errors, students 6 and 7 were at the highest ZPD compared to others as they had no errors on the first task.

Comparing the first and the second task in Table 2, students 4 and 10 demonstrated an improvement compared to the first task (even though the first required fewer number of words) in that they noticed their errors in the second task with a more implicit feedback compared to the first task. Students 3, 6, 9, 11, and 12 demonstrated the same level of noticing and thus no improvement. However, students 1, 2, 5, 7, and 8 had a lower level of noticing in the second task: students 1, 5, and 7 demonstrated the need for the implicit-explicit feedback though they had noticed their errors with the implicit feedback in the first task (student 7 had not had any errors); students 2 and 8 failed to notice their errors at all stages of the feedback in the second

writing. This demonstrated that the second task was more difficult for the majority of the students (as also depicted by Figure 3).

Moreover, the comparison of task 2 and 3 also shows that, on the whole, task 2 was more difficult than task 3 as well (only students 1, 2, 7, and 8 demonstrated improvement compared to task 2 and the rest performed worse) and for that reason task 2 was again used for the final assessment to make a solid ground for comparison.

Finally, the comparison of the second and final task in Table 2 shows that students 2, 4, 5, 7, 8, and 10 demonstrated noticeably fewer errors in the final assessment which is an indication of the effectiveness of the procedural corrective feedback. However, students 1, 3, and 11 demonstrated the same number of errors and students 6, 9, and 12 each committed one error more than the second task in the final assessment.

Figure 4 tries to depict the ZPD of each learner in terms of the stage in which they managed to identify and correct their errors. In Figure 4 the black bars show the initial number of errors that students committed in the second writing task, the lightest gray bars show the noticing in the meta-cognitive implicit stage, the darker gray bars show the noticing in metalinguistic implicit-explicit stage, and the darkest gray bars with black borders show the explicit correction.

As it is evident, students number 4, 9, 10, 11, and 12 successfully noticed their errors in the first stage of most implicit feedback. Students number 1, 5, and 7 were able to notice their errors in the second stage of feedback which included meta-cognitive implicit-explicit feedback. Finally, students 2, 3, and 8 were unable to notice their errors and therefore relied on the teacher's explicit correction.

When these learners are checked in the final assessment (refer to Table 2), it is observed that students 2, 3, and 8 who noticed their errors in the second phase of correction on the second task and students 1, 5, and 7 who failed to notice their errors on the second task and finally resorted to the teachers' explicit correction, all committed fewer errors in the final assessment. This demonstrates the positive impact of the procedural feedback on students' noticing and improvement of one aspect of their interlanguage.

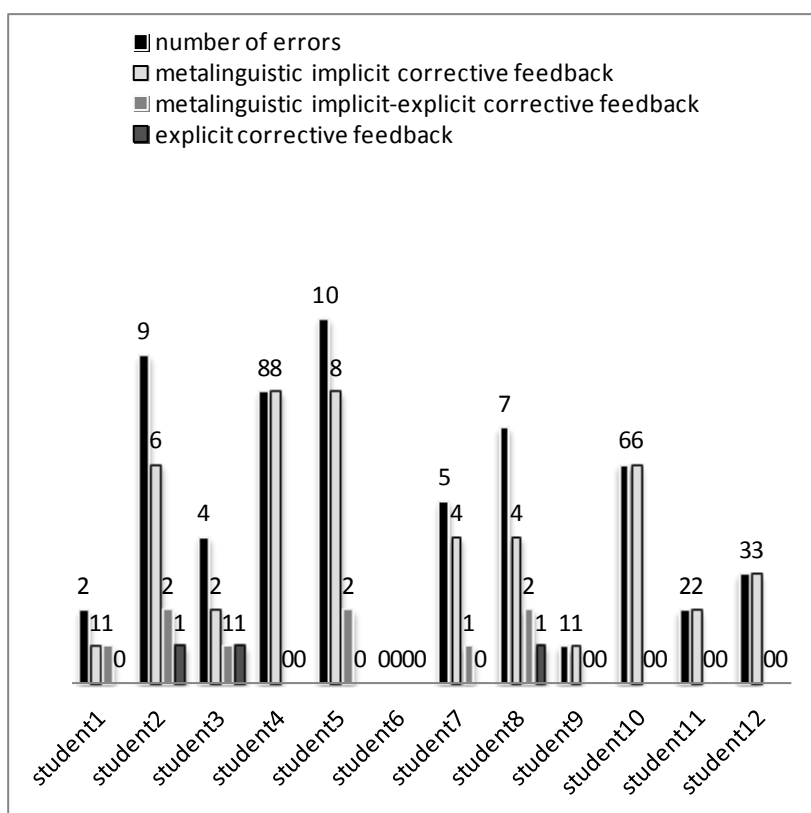


Figure 4 – Students' ZPDs based on the stages of procedural implicit-explicit corrective feedback in the second writing

Results of the Students' Reports

As mentioned earlier, the students were also asked to report their feelings and attitude about the procedural corrective feedback they experienced. They were also asked to take account or recall the type of error they made. For example, one of the learners mentioned in her recall protocol that she had many errors such as spelling problems, tense use (e.g., incorrect usage of 'used to') and one of her erroneous outputs was '*she didn't used to go*' or had problems in countable and uncountable nouns, for example, she had produced '*many pollution*' instead of '*much pollution*'.

Some of the students' reflections in their recall protocols are presented hereunder as a sample:

- *I understood my errors deeply.*
- *Prior to this way of correction, when the teachers corrected my mistakes I didn't concentrate on my errors.*
- *I read my writing a lot to find my mistakes and sometimes I study some grammatical books or use dictionary. By this way I remember my problems in future.*
- *When I understood my problems I tried hard to solve them.*
- *When I found my mistakes on my own, I will understand better and I won't forget it.*
- *It was like a game since I had to find my problems I enjoyed a lot.*
- *Before I always put my writings in my book and had never looked at my mistakes.*
- *By this way I eager to study more and more.*

The reports by the learners regarding their feelings toward the task demonstrated their positive attitudes toward this procedure. Based on their reports as well as the random feedback they gave to the teacher during the course, it was realized that prior to this procedure students had experienced various methods of more or less ineffective correction. But in this new method students had a different view of their errors and were motivated to tract their own mistakes to such an extent that one of the students referred to this procedure as 'a game'.

Discussion and Conclusion

The main focus of the study was exploring the process as well as the effect of the procedural implicit-explicit feedback on learners' noticing of their errors and finally improving those problems as an example of their inter-language development. As the results demonstrated, the total number of the errors which all learners made in the final writing decreased to half in comparison to the second writing. This comparison was justified due to the fact that both writing's had the same topic with the same focused grammatical points. Another interesting point was that little by little the noticing level of the learners increased. As Lantolf (2000) believes, social context and interaction mediate language learning and in this study, teacher's continuous mediation with procedural implicit-explicit feedback had positive effect not only on noticing the errors but also in terms of the number of errors they made.

The findings of this study are also in line with that of Nassaji and Swain (2000) who set out their study in line with Aljaafreh and Lantolf's (1994) study which was about the contingency of scaffolding in learners' ZPD. Nassaji and Swain worked with two groups of Korean adult learners and just focused on the use of definite and indefinite articles in English. For one group they applied implicit feedback to written assignment at the beginning and in the case that the learner did not find the error, progressively more explicit feedback was provided for the learner until the learner could correct the error.

They claimed that scaffolding was done based on the ZPD of the learner. On the other hand, random explicit or implicit feedback was provided for the other group. At the end of their study, the first group of learners outperformed the second group who just received random explicit or implicit feedback. They claimed that their study was "consistent with the Vygotskian socio-cultural perspective in which knowledge is defined as social in nature and is constructed through a process of collaboration, interaction, and communication among learners in social setting and as the result of interaction with the ZPD" (p. 49).

Taking the individual learners into consideration in this study rather than focusing on the total number of errors of all students, six students demonstrated fewer errors in the final assessment compared to the second one which is again a support for what is mentioned above. However, students number 1, 3, and 11 had the same number of errors in both tasks and thus did not show any improvement. Generally, we can conclude that this gradual correction procedure did not have an impact on these specific learners' performance across writing tasks. Of course, one has to bear in mind that some intervening variables such as high affective filter, fatigue, classroom setting and environment, and the attitude of the learners may have had an adverse effect on their performance in the final writing. Moreover, the type of grammatical errors in focus might also be a factor. That is to say, grammatical points differ in terms of difficulty for different learners. Therefore, some grammatical points may be more difficult for the learners to learn and they might thus need more corrective feedback. Moreover, the limited number of the writing tasks and thus the number of times the learners experienced the procedural corrective feedback might have been another factor which can yet be evidence for the differing ZPD of different students when one compares the mentioned students with those who were positively influenced by the procedure.

On the other hand, students number 2, 4, 5, 7, 8, and 10 had lower number of errors in the final assessment. This supports the positive effect of

procedural corrective feedback on the development of learners' interlanguage. The reason for the effectiveness of such a procedure might have been the fact that it resulted in higher degrees of student involvement both cognitively and meta-cognitively and consequently the analysis and further correction or the noticing happened at a deeper level.

Furthermore, it can be also said that such a gradual and step by step implicit-explicit feedback fits into the ZPD of the learners. That is, based on their ZPDs and the difficulty of the task, learners would quite naturally respond to teacher's feedback in that they would respond to each stage of feedback (implicit or explicit) in case their ZPD tunes into the type of feedback. For example, students 1 and 11 who did not show any improvement from task 2 to the final task, demonstrated almost the same ZPD throughout the three tasks. Moreover, students 9 and 12, who's noticing is discussed hereunder and demonstrated an additional error in the final assessment compared to the second one, demonstrated exactly the same ZPD throughout all three tasks; they both noticed their errors with the first stage of feedback in tasks 1 and 2 and completely failed to notice their errors in task 3.

Therefore, the procedural corrective feedback seems to have had a reverse effect on students 6, 9, and 12. Note has to be taken, though, that these learners committed only one error more in the final task compared to the second one. However, if one does not intend to ignore this small difference and count it as a reverse effect, one justification could be the existence of other factors that might have intervened with the learners' performance way beyond their linguistic capacity; factors such as motivation, attitude, and physical state which might have an unwanted influence on the construct under investigation. This justification seems to be appealing as students 9 and 12 demonstrated a very strange pattern as mentioned above: they both were able to notice their errors with the first implicit feedback on both tasks 1 and 2 but failed to notice their errors in task 3 and had more errors in the final task compared to the second task.

Another interesting finding to be discussed is the fact that students who demonstrated the same ZPD in one task, demonstrated a different ZPD on the other tasks. This is another evidence for the fact that the difficulty of the task might be an important intervening variable when the impact of procedural implicit-explicit feedback is investigated on the noticing of learners based on their ZPDs. Therefore, further investigation is required to probe into the effect of the interaction among task difficulty, procedural implicit-explicit feedback, and learners' ZPD.

An important issue to note for discussing the findings of this study is its limitation in terms of the number of participants and the time devoted to the procedural feedback. Detailed classroom-based studies such as this, with their use of intact groups may not be generalizable to a larger population of learners (Packard, as cited in Mackey, 2006, p. 425). However, studies using intact classes are also "more likely to have external validity because they are conducted under conditions closer to those normally found in educational contexts" (Seliger & Shohamy, 1989, p.149).

Thus, another issue that will need to be addressed in future research is that of time. The current study was conducted over a relatively short period of time and thus with few samples of writing. It would be of interest to determine for how long any effects of interactional feedback persists using an appropriate longer term measures. The other limitation of this study was that it did not determine in which grammatical form learners improved or for which type of linguistic form (e.g., tense, agreement, modal) this gradual implicit-explicit feedback was useful.

The results only showed the general overview of the learners' improvement in noticing and correction and the detail was not investigated. Moreover, the researcher is aware of the fact that conditions under which the research was carried out was not void of some undesirable factors as in controlled experimental conditions. Many factors such as motivation, time of the day, attitudes, and other factors were not closely taken into consideration.

Finally, this research suggested that there may be an association between noticing and learning and has pointed to the role of procedural implicit-explicit corrective feedback as a mediator in the noticing and the learning of the learners. Therefore, the study highlights the importance of including the procedural corrective feedback in the teacher educators' agenda and TTC courses.

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Appendix

Sample Learning Journal for Noticing

| | |
|---|--|
| What did you notice? | |
| Did you get it in first or second time of correction? | |
| Did the teacher correct your errors? What was that? | |