

# EFL Learners Interaction with Feedback Presented through a Computer-Assisted Reading Program

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## Abstract

This article examines the interaction patterns of second language (L2) learners when engaging with different types of feedback presented through a computer reading program. There were 12 EFL learners who were asked to complete reading exercises in the program, and the way they interacted with the feedback provided was examined through interviews, observations and think-aloud exercises. The qualitative analyses explored participants' experience of the reading feedback and how EFL learners of different language levels behaved when presented with knowledge of correct response (KCR), elaborated feedback (EF), and no feedback. The results showed limited use of the EF, and most students relied on KCR to guide their reading. In addition, many of the participants commented on the complexity of the EF, which presented as a barrier to facilitating reading comprehension. From the interviews, it was discovered that feedback could negatively influence the reading experience for low-level learners as the feedback was not accessible enough to help in the reading comprehension process.

**Keywords:** feedback, reading, interaction, computerized assessment, dynamic assessment

## 1. Introduction

Creating autonomous learners has become one of the central goals within the field of education policy (Shao & Wu, 2007; Wermke & Salokangas, 2015). The tools provided through computer-assisted language learning (CALL) have made it possible to concentrate more on the individual student. In particular, due to technological developments, L2 readers have greater choice and control over their reading. In addition, as a result of the internet and Web 2.0 technologies, learners have been able to develop critical literacy skills, and reading strategies required to participate in online discourse communities (Park, Yang, & Hsieh, 2014; Vandergriff, 2016).

In the L2 classroom environment, teacher feedback is essential in helping learners acquire the target language (Mackey, 2012). However, learning that takes place using CALL often transpires without direct teacher involvement, and consequently, educators need to reexamine how feedback can be provided efficiently and effectively. In order to provide effective feedback, there is a need to comprehend how L2 learners interact with a computer interface and the implications this may have for the presentation of feedback. By examining learners' feedback interaction patterns from the perspective of sociocultural theory, it will be possible to investigate the differences between computer-mediated feedback and in-class teacher feedback (Caws & Hamel, 2016; Peterson, 2009).

## 2. Literature Review

### 2.1 Feedback for L1 Learners

Computer-based feedback improves learning outcomes across various subject areas, including mathematics, science, and language (Kingston & Nash, 2011; Moreno, 2004; Lee, Lim, & Grabowski, 2010). Kleij, Feskens, and Eggen (2015) conducted a meta-analysis of studies investigating feedback effects on computer assisted learning and found significant variation between the different subject areas and the magnitude of the effect size when calculating improvements in learning outcomes due to feedback. Mathematics feedback had the most significant overall positive effect, followed by the social sciences and science, with language learning reporting the smallest effect size. Furthermore, the authors calculated that the largest effect size was for elaborated

feedback (EF) (0.49), with smaller effect sizes for the correctness of the answer (KR) (0.05) and providing the correct answer (KCR) (0.32). The fact that there was such a considerable variation between the effect sizes based on the subject area of interest and type of feedback suggests that research studies need to consider these two factors when examining the benefits of feedback.

The two types of feedback that have attracted the most interest in the area of feedback research are EF and KCR (e.g. Timmers & Veldkamp, 2011; Wauters, Desmet, & Van den Noortgate, 2010; Llorens, Cerdan, & Vidal-Abarca, 2014). EF explains why a selected response is incorrect and details why the correct answer should be selected. On the other hand, KCR feedback indicates whether the selected answer is correct. The logic is that EF is more efficacious than KCR as learners cannot discover why an answer is wrong by simply relying on KCR, and require extra information in the form of EF.

It remains to be seen whether feedback leads to enhanced learning outcomes for L1 readers because the findings in the literature have been inconsistent (Kluger & DeNisi, 1998; Shute, 2008). The variation in the results may be due to how different studies measured the benefits of different types of feedback. For example, Murphy (2010) conducted a study on feedback and reading for a group of university students studying at a British university. He found that university students reading outcomes using computer-mediated feedback showed a greater degree of improvement when they were provided with EF as opposed to KCR. Moreover, he found that learners benefited more from feedback when asked to complete the reading tasks in pairs instead of by themselves. Working in pairs meant learners focused more on the feedback, regardless of whether it was KCR or EF. Therefore, there is a need to investigate what type of feedback is most effective and other factors that influence a reader's interaction with feedback.

Another research focus is on how the content of EF influences the natural learning processes of students. An important skill of good readers is their ability to readily locate relevant information within a text (Llorens, Vidal-Abarca & Cerdan, 2016). Vidal-Abarca, Mana and Gil (2010) suggested that students' exposure to EF helped them locate the critical information needed to answer questions about a text, which would assist them in becoming better readers. They argued that this form of EF would help students improve their ability to answer comprehension questions and their cognitive processing of a text.

L2 readers learning in an EFL environment frequently must complete reading tasks designed for L1 learners, where the feedback presentation has been tailored to meet the needs of L1 learners. Furthermore, in education, the use of computers and digital technology has increasingly influenced the reading practices of L2 learners. Therefore, there is a need to evaluate how L2 learners comprehend L1-focused feedback provided through computer-based learning platforms. While L2 readers share many similarities with L1 readers, there are still important differences. As such, it is necessary to establish if this results in L2 learners interacting with feedback in a different manner.

## *2.2 L2 Readers and Computer Based Dynamic Assessment*

Lantolf and Poehner (2013) drew a connection between the concept of dynamic assessment (DA) and Vygotsky's (1986) Zone of Proximal Development (ZPD). The ZPD is "the distance between the actual developmental 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" (Vygotsky, 1986, p. 86). Lantolf et al. (2013) argued that central to the concept of ZPD is that higher ways of thinking develop as a result of interactions with other people and physical artifacts such as computers. The authors delineated two forms of DA which they termed interventionist and interactionist. Interventionist DA is assistance that has been standardized and quantified to establish the most efficient path to reach a specified goal. On the other hand, for interactionist DA, the type and level of assistance are not predetermined but arise from the interaction between the examiner and student.

Interactionist DA is of particular interest to teachers as it reflects the nature of classroom interactions. Furthermore, the advent of computer based DA (C-DA) has opened up new opportunities for collaboration between learners and more capable peers. Humans have been found to interact with computers in a way that mirrors real life interactions with other people, with users behaving politely to computers and treating them as social actors (Reeves & Nass, 1996). Consequently, computers can assist the language learner in a way similar to that envisioned in DA theory. Test developers working with DA based computer-adaptive testing describe how computers allow for the efficient and reliable calculation of test scores by adjusting test item difficulty to match a learner's language ability (Chapelle & Douglas, 2006). The inclusion of assistance through adaptive testing allows for the development of a C-DA that enables individuals to develop their potential as L2 learners beyond their current level of ability.

One common way to aid students in developing their level of L2 reading ability is by providing feedback. While many studies have examined how different forms of feedback can influence learners, there is an ongoing debate about what constitutes the preferred form of feedback (Murphy, 2017; Bangert-Drowns, Kulik, Kulik, Morgan, 1991).

### *2.3 Feedback in Computer Based L2 Reading*

The type of feedback provided through computer-based programs can significantly impact the reading outcomes of L2 readers, and many scholars have sought to determine which type of feedback is the most effective in helping to improve reading skills.

Murphy (2007) compared the relationship between EF, KCR, and reading comprehension for two groups of L2 university students in Japan. One group of students who worked in pairs could provide EF to each other while completing reading comprehension questions. The other group was required to complete the task individually; the only form of feedback they received was KCR. It was found that students who worked in pairs and were able to receive and give EF achieved higher reading comprehension scores than those who had worked individually. Therefore, there is a need to determine if such a finding could be replicated when extended to other forms of interaction, like when students work with a computer-based reading program.

The extent to which individual learners benefit from computer-based feedback varies greatly and the reasons for this variation need to be clearly understood. Poehener, Zhang and Lu (2015) investigated the reading outcomes of EFL Chinese students who received a graded form of reading and listening feedback. Learners were allowed multiple attempts at questions, and feedback was first given as a more general hint and gradually became more detailed each time the question was answered incorrectly. There was significant variation in the degree of benefit different learners derived from the feedback. It was observed that lower-level learners benefited most from mediated feedback and the authors suggested this was because they had more to learn. However, there is a need to establish other possible causes for variations in how individual students benefit from mediated feedback.

Even though there are significant variations in how individuals react to feedback, most previous research concerning DA has taken learners as a single monolithic group (Kozulin & Garb, 2002; Lantolf et al., 2013). However, Kozulin and Garb (2002) attempted to identify possible factors that differentiate individual learners. They created a mathematical formula, the learning potential score (LPS), which showed significant variation between individual learners in terms of their learning potential. However, more research is still needed to assess the formula's validity and reliability. In addition, there is some evidence that the formula fails to account for some of the differences between learners. For instance, the formula predicts that some higher-level learners will perform better than lower-level learners, which contradicts the findings of Poehener et al. (2015), who found the opposite true. Therefore, there is a need for a more detailed investigation into the relevant learner differences that explain variations in the interaction patterns associated with feedback. In particular, because previous research has identified the importance of the relationship between the level of English proficiency of a learner and their interaction with feedback, there is a need to investigate further how a learner's English level is related to how they access different types of feedback.

### *2.4 Research Questions*

Based on the review of the literature, three research questions are proposed:

1. What factors affect Korean L2 beginners when interacting with EF, KCR, and no feedback?
2. What factors affect Korean L2 intermediate to advanced readers when interacting with EF, KCR, and no feedback?
3. What do Korean L2 readers think about computer-based reading instruction?

## **3. Method**

The participants in the study were ten Korean students who had learned English as a foreign language in Korea. All participants had been born in Korea and had spent most of their life in the country. The age of students ranged from 23 to 35 years of age, with an average age of 29 years. There were 6 males and 6 females. The participants were divided into two groups: low-level and intermediate to advanced readers. Low-level readers had a reading score between 1 and 3. Intermediate to advanced readers had a reading score between 5 and 12. There were 3 low-level readers and 9 intermediate to high-level readers.

### 3.1 Reading Level

#### 3.1.1 Low Level Readers

##### Seb

Seb identified himself as someone who knew very little English and wondered if his contribution to the study would be worthwhile. Seb worked part-time in a hospital and did not use English in his job. He was currently trying to study grammar by himself but believed that he had a lot more to learn. He had never taken any standardized English test. He had a reading level of 2.

##### Bob

It was Bob's firm belief that he had terrible English and was at a level significantly lower than his other friends. Bob was a university student and did not use English as a part of his studies. He had never taken the Test of English for International Communication (TOEIC) but had recently enrolled in a TOEIC test preparation school. He had a reading level of 2.

##### Ruth

Ruth said she had just returned from a year abroad living in Australia, where she had studied English reading by herself. She worked as an early childhood educator in Korea and valued the importance of reading to her students to help their literacy development. The last English test she took was in high school. She had a reading score of 3.

#### 3.1.2 Intermediate to High-Level Readers

##### Henriette

Henriette was undertaking graduate studies in English Education and was also was studying L2 reading. In addition, she was teaching reading to L2 elementary and high school students. In the recent past, she had taken the TOEIC test. She had a reading level of 5.

##### Carol

Carol was a mother of two young children and witnessed how her two children were beginning to read English. She felt she needed to study English reading to prepare to live abroad but could not make the time because of her two children. She had a reading level of 5.

##### Eric

At the time of the study, Eric was completing a course in English literature at university. The course required a high level of English reading proficiency. As part of the course, he was required to read extensively different styles of literature and discuss what he had read in class. He had taken the Test of English as a Foreign Language (TOEFL) and TOEIC English tests. He had a reading score of 6.

##### Sue

Sue reported having minimal contact with English reading in her daily life. However, she had previously taken the TOEIC test. In the past, Sue had learned English speaking when at university. She had a reading score of 6.

##### Drake

Drake had been preparing for the TOEIC test at the same time he volunteered to participate in the study. In the last year, he had studied at a university in America, where he was required to read texts related to his major in English. He had a reading level of 6.

##### Edward

Edward said that he rarely read anything in English. He said that he enjoyed learning English but preferred learning English speaking. He was working as an engineer and was not required to use English as part of his job. He had previously taken the TOEIC and TOFEL tests. He had a reading level of 6.

##### Amanda

Amanda was in her final semester at university studying for her Master of TESOL. She had previously taught young EFL students English reading. In particular, she believed in the importance of strategy instruction in helping improve reading outcomes. She had a reading score of 7.

### Gretel

Gretel was currently completing graduate studies in English Education and, as part of her studies, was learning about EFL reading. She was a qualified high school English teacher and taught English reading as part of her work. In the past, she had taken both the TOEIC and TOFEL tests. She had a reading level of 7.

### Hank

When asked to participate in the study, Hank was preparing for the IELTS test. He had previously completed studies in Korea, where most of the reading material was provided in English. He had worked in England in the past year and had to read English documents related to his occupation. He had a reading level of 12.

### 3.2 Materials

The program “ReadTheory.org” was the reading program used in this study. It was selected due to its wide use globally, with over 10 million users (ReadTheory, 2020).

After registering their details on the site, learners took a reading test that ranked them on a level between 1 to 12. The learner was then presented with a text appropriate to their level and asked to solve a series of multiple-choice questions. After the question response was submitted, another question appeared related to the same text. Once the set of questions had been answered, a new text would appear. The level of the text changed depending on the number of correct responses given in the preceding text.

The KCR and the EF were presented simultaneously. The correct response was marked in green, and the incorrect response was shown in red. The EF included a quote from the passage where the answer could be found. Following this, a detailed explanation was provided about the correct response and why other responses were incorrect. When the learner answered the questions correctly, no feedback was provided.

### 3.3 Procedure

#### 3.3.1 Advance Preparation

The participants were asked to complete the initial adaptive reading test and two problem sets for practice purposes. An individual's reading proficiency was taken as the final score achieved before taking part in the think-aloud exercise.

#### 3.3.2 Background Interview

Before commencing the reading exercise, participants were asked about their previous experiences with learning English, particularly reading in English. Information was also gained about their employment or studies. Lastly, they were asked about the various English reading tests they had undertaken in the past.

#### 3.3.3 Think-Aloud

I demonstrated to the participants how to follow the think-aloud procedure using a practice question from a low-level example from ReadTheory. Special mention was made of the feedback provided and the need to respond to the feedback. Participants were then asked to practice using examples from the program. They were instructed to speak in the language they felt most confident with, whether in English or Korean. When the participants indicated they felt confident they knew what to do, the actual think-aloud task commenced. The oral responses of the participants were recorded. The participants were required to complete two reading passages.

#### 3.3.4 Observation

I recorded detailed field notes while the participants undertook the reading tasks. Particular note was made of how the participants focused their eyes and moved between the passage, the questions, and the feedback.

#### 3.3.5 Post Reading Interview

Based on the researcher's observations, they asked participants follow-up questions about distinct behavior I noticed. At the end of the activity, learners were asked about their overall impression of the program. Furthermore, they were quizzed about what they thought about the feedback presented by the program.

## 4. Results

A transcript of the recorded responses from the think-aloud exercise and interviews was created. Then the researcher read all the transcripts and field notes before sorting the data into codes. The data analysis followed a procedure that Parlett and Hamilton (1976) called a ‘progressive focusing’ manner. First, a broad view of the data was taken, using the three research questions in order to establish an initial coding system. Second, memos from the field notes were used to explore the data further. Finally, using memos from the field notes helped develop analytic thinking when approaching the data (Groenewald, 2008).

Each of the three research questions required different approaches to the data. The transcript was divided according to the reading proficiency levels of the participants to answer the first two research questions. A list of words was created that identified possible themes in each data set and these were then sorted according to major themes, which then formed the coding categories (Bogdan & Biklen, 2007). One of the limitations of this form of analysis is that it risks eliminating the experience of individual participants in order to produce a coherent account (Cohen, Manion, & Morrison, 2018). To avoid this problem, special care was taken to identify parts of the data that differed from the overall unifying themes.

Organization categories were created to analyze the think-aloud and field notes concerning the first and second research questions. These categories are helpful when they have been established prior to the data collection stage and these guide the analysis (Maxwell, 2013). Since the research questions looked specifically at EF, KCR, and no feedback, these were the three categories used to organize the data.

For the last research question, there was a necessity to give voice to the beliefs and opinions of the participants. Consequently, substantive categories formed the basis of the organization of the interview data, with categories emanating from the words and concepts of the participants (Maxwell, 2013).

#### *4.1 Do Korean EFL Readers with Different English Proficiency Levels Interact with Feedback Differently?*

The two lower-level participants attempted to read the detailed feedback but gave up trying to understand what it meant. For Bob, the first time he was presented with the EF, he read it in detail but commented that he could not understand it. Bob ignored the KCR and reported that it did not help him understand why he was incorrect. Following this, he did not attempt to engage with the feedback and moved straight to the next question when he answered incorrectly. Seb behaved similarly, but his inability to understand why he was wrong led to a high level of frustration. He observes, “if the feedback were in Korean, it would help a bit, but because it is in English, there is no way for me to know whether I am correct or not.” Another frustration he experienced was with the length of the EF, which was significantly longer than the reading passage, and he believed that the opposite should be the case.

Interestingly, while the EF and KCR were not helpful for Seb, the feedback that his response needed to be corrected alerted him to the fact that his inferences about the passage needed to be revised. Upon answering subsequent questions from the same passage, he used the questions to help revise his understanding of the text. Therefore, the main form of mediation for Seb was the question items.

#### *4.2 What Factors Affect Korean EFL Intermediate to Advanced Reader's Interaction with EF, KCR, and No Feedback?*

##### *4.2.1 Intermediate Readers' Interaction with KCR*

In many cases, when the participants selected their response, they hesitated between two possible answers. They would then recheck the passage to see which response was more likely. Following the rereading of the relevant section, two behavior types were observed. Either the individual would choose what they believed was the better response or simply guess, hoping they were correct. If the KCR indicated that the other option they were considering was correct, the individual would then read the relevant section again to try and understand why they were wrong. Once they had established to their satisfaction the reason for the incorrect response, they would move to the next question. No use was made of the EF. This behavior was observed in the majority of cases of the use of feedback.

##### *4.2.2 Intermediate Readers' Reaction to No Feedback*

Amanda remarked that she would have found it helpful to use feedback, even when the correct response was chosen. For example, in one question, she decided on the correct answer based on information in the title of the passage. As a result, Amanda narrowed down the answer to two possibilities and then just guessed which one was correct. However, when she successfully selected the correct response, no KCR was provided, and she expressed her disappointment at not being able to discover why the answer was correct.

##### *4.2.3 Intermediate and Advanced Readers' Use of EF*

The EF identifies where in the text the correct response is to be located and this was the principal feature of the feedback, which readers found helpful. Upon learning where the correct answer was to be found, they would locate the applicable section in the text and attempt to understand why the indicated answer was correct by themselves. In most cases, the learner would then simply proceed to the next question, but on occasion, they would check that their understanding was accurate by reading the feedback in detail.

#### 4.2.4 Task Effect and the Use of EF

One task that participants consistently found difficult and for which EF provided little assistance was questions that asked the learner to match a word with an appropriate definition. If an individual selected the incorrect response, their first reaction would be to try and locate the relevant word in the text. Following this, it was common for them to look at the question options again and briefly look at the EF. However, the general opinion was that the EF proved to be of little assistance, and even Hank, the advanced reader, needed clarification on the meaning of the EF. Consequently, he expressed a desire to look up the relevant word in a translation dictionary.

#### 4.3 What do Korean EFL Readers Think about Computer Based Reading Instruction?

##### 4.3.1 Interest

The learners generally responded positively to the program as they found the passages interesting to read. However, the level of interest was related to the topics of the passages. Henriette commented that:

###### Extract 1

*First one was not interesting cause it was about environment. Fire. I don't have any interest about that but crème brulee this was dessert so I usually have much interest in dessert so it was interesting and I think I have already have tried this.*

The two participants who held a contrary view were the two beginner students. For instance, Bob remarked on the difficulty of the task:

###### Extract 2

*I need to be able to translate it perfectly so I can answer the questions. Because I had difficulty translating, it was a bit difficult.*

##### 4.3.2 Connection with Previous English Tests

It was common for the participants to draw on their past or current English test taking experience to judge the effectiveness of the program. Hank assessed the reading material in relation to different English tests:

###### Extract 3

*To tell the truth this one is kind of it was good because I normally see these types of questions from IELTS so I think it is very good to prepare for the IELTS exam but not for TOEIC or TOFEL. Because TOEIC or TOFEL they have some very intense focus on something. Like TOEIC for business so only you never see such kind of thing but TOFEL that's too academic somehow but this one has some variety of subjects.*

In the case of those who had never taken a standardized test, a comparison was made with the Korean College Scholastic Ability Test (CSAT), which is a test all Korean students take before graduating from high school. Carol, in the interview, commented that she found the reading difficulty level of the passage to be challenging, just as she had found the reading level of the CSAT to be difficult. She described her experience as follows:

###### Extract 4

*When I was in school and took the CSAT, I did not like English and did not study hard. This was because with English there is a lot to memorize and I do not like memorizing things. However, compared to my ability level, I think I received a better score than could have been expected. I liked Korean language study you see. For that reason, I know roughly how texts are written. Even if I was to write something, I would think how I would develop my idea. So I make an assumption about the author's intention, and answer the questions. So that now when I see a question I have no idea about how to answer, I don't get flustered but look for clues one at a time. I don't have the choice not to answer, so I have to rely on clues.*

In the case of Carol, it should also be noted that this was an attitude she also took to try and understand the feedback as well. Even though she admitted that comprehending the EF was beyond her reading ability, she persisted in trying to understand it by finding clues. Compared to other participants, who would ignore the EF if they could not understand it, Carol was the only participant who went to great lengths to try and understand the EF. She demonstrated how based on personal experience with other tests, learners could have different approaches to interacting with feedback.

##### 4.3.3 Inaccessibility of EF

When asked about the feedback, most participants were critical of the inability to comprehend the EF easily. Drake noted that he had difficulty making use of the EF.

## Extract 5

*The explanation didn't just jump out at me. The explanation was very kind but it is hard to understand right away. I just guessed at the reason for the answer and then just moved to the next question and that's how I knew why I was wrong. It just seemed to be the reason why I was wrong.*

What is absent from the interview data are comments related to the presence and effectiveness of KCR. From the participants' perspective, it seemed that feedback is to be understood in terms of EF alone and not KCR. This suggests that they recognized the potential of EF to assist with their reading efforts.

## 4.3.4 Effect of the Absence of a Time Limit on Reading

Many of the learners reflected on how the absence of a time limit influenced their approach to the reading task. Ruth is an example of one such student who, even though explicitly instructed that there was no time limit, felt pressured to complete the questions quickly. As she explained:

## Extract 6

*When I took the CSAT, I had to complete the questions quickly. Time was very important when doing the test. So I think that is why I had to move quickly from one question to the next.*

The converse was true for Amanda, who expressed that:

## Extract 7

*If there had been a time limit, I would have been wrong. So because there was no time limit, there was enough time to understand the question. That's different from TOEIC. So my correct response rate was higher. When I take TOEIC reading, I often get the questions wrong because I have insufficient time.*

However, this attitude to time was not common to all participants. Carol and Hank took over an hour to complete the reading exercise, while other participants took less than thirty minutes. Neither mentioned time as a special characteristic of the reading task. Even though it took a substantial amount of time to perform the exercise, both expressed their enjoyment of completing the reading task.

## 5. Discussion

The study demonstrated significant variation between participants in terms of how they interacted with feedback. Overall, there was a preference for KCR compared to EF, but some participants found the EF helpful. Importantly, the benefit that participants gained from the feedback were less dependent on the type of feedback and more related to how they chose to use the feedback.

Compared to previous studies that have reported on the benefits that learners obtain from EF, only a small number of the participants in this study reported that the EF was useful (Mory, 2004; Murphy, 2007). One of the chief differences in this study was the complexity of the EF, as the EF had been written with L1 readers in mind. Therefore, there was no attempt to simplify the content and presentation of the EF to accommodate the English level of the learners. In addition, as was noted by Hank, the length of the EF was comparable to the EF that is regularly used by students preparing for the TOEIC test in Korea. However, the key difference is that the EF presented in such learning material is presented in the Korean language and so is more readily accessible to the reader.

However, because of the difficulty level of the EF, it is not clear if the EF was less effective than KCR because of the EF's difficulty level or other learner factors. In order to overcome some of the problems presented by the difficulty level of the EF, Poehener et al. (2015) provided feedback in a graded manner so that feedback was presented in steps and would become more detailed and complex as a participant continued to get the question wrong. This is similar to how most participants in this study processed the feedback and sought to understand the KCR, before seeking their own explanation for why they were wrong. In many cases, the participant had already narrowed down the possible correct responses to two options. In such cases, the KCR was all that was needed, and the participants were able to discover the reason for the mistake themselves. However, when this level of feedback was insufficient to help discover the reason for the answer, then the participants would move to the next step and rely on the more complex EF.

Therefore, the type of feedback the participants would rely upon partially depended on how confident they were in discovering the reasoning behind why their responses were incorrect. Other feedback studies mainly control the type of feedback a learner has access to and have not given individuals the flexibility to pick and choose what parts of the feedback with which they wish to interact (Brown, 2017). In this study, participants expressed their desire to access feedback in cases where they had selected the correct option, and no feedback was provided.



The fact that a student managed to choose the correct answer did not guarantee that they were confident in their responses. Therefore, learners would benefit from having access to EF even when they have answered correctly.

The difficulties that the learners reported with the EF demonstrate that the quality and level of the EF are crucial factors in determining the extent of the benefits learners obtain from feedback. Hattie and Timperley (2007) argued that for feedback to be effective, it must be able to answer the three questions: 1) where am I going? 2) how am I going? and 3) where to go next? A learner who can answer these three questions while interacting with feedback will benefit the most. The first two questions could be answered by the KCR alone. Information about whether a learner has answered the question correctly will alert them to whether their inferences about the text are correct and if they need to revise their thinking. The EF could have answered the third question, but in many cases, the learners would seek where to go next by relying on other clues. In most instances, this meant re-reading relevant sections of the text.

Compared to other studies that identified feedback's generally positive effect on learning, the opposite phenomenon was observed for low-level readers in this study. The inability to understand feedback and discover why they were wrong led to feelings of frustration and the establishment of negative attitudes towards the reading exercise. One consequence was that the learners gave up on understanding the feedback after their initial attempt. Therefore, the negative emotional consequences of feedback on learners and their limited use of feedback are of concern.

It is possible to understand the behavior of these novice learners in light of the Affective Filter Hypothesis. Learners are said to have an affective filter that regulates the amount of input a learner can access when trying to learn a second language (Dulay & Burt, 1977; Krashen, 1983). The lower the affective filter, the more input is available for comprehension. High levels of anxiety, low motivation, and low self-confidence will raise the affective filter (Krashen, 1983). In the case of low-level readers, they had low self-confidence, making it more difficult to process the feedback.

Furthermore, feedback influences the affective filter. For example, research on in-class teacher feedback showed that students reported increased self-confidence and reduced anxiety levels when they could negotiate with feedback provided by the teacher (Yuhui & Sen, 2015). However, low-level students could not interact with the feedback, which likely negatively influenced their affective filter.

In addition, the length of the EF was a problem for beginner learners who felt overwhelmed having to read such a long explanation at a reading level significantly higher than the passage they had read. It has been previously suggested that one of the benefits of formative feedback is that it helps reduce the cognitive load of novice learners, who can become overwhelmed by the amount and complexity of the input they need to understand (Sweller, Van Merriënboer, & Paas, 1998). However, for the low-level readers in this study, the EF seems to have added to the cognitive load.

## 6. Conclusion

Overall, the English level of the students influenced the extent to which they could utilize the feedback, with low-level readers reporting little benefit from being presented with the EF. Higher-level learners also preferred KCR, but some participants reported that the EF was helpful. The difficulties learners had with understanding the EF may be a reflection of the level of complexity of the EF. Therefore, future research needs to examine the factors that contribute to the ease or complexity of EF. Nevertheless, the learners generally found the reading activity interesting and viewed the reading exercise in a similar way to past English tests they had taken.

The study has important implications for the design of feedback to better meet the needs of students. The level of feedback difficulty should be appropriate for the learner's English level, with particular care given to ensure explanations are accessible for low-level learners. Material designers must avoid overly elaborate EF explanations, which may tax the limited cognitive resources available to the learner. The findings also demonstrate the benefits of encouraging students to discover the reasons for the correctness or incorrectness of their answers based on KCR. Many students found this self-reflective practice more useful than engaging with EF.

It is possible to identify several limitations in the study that could form the foundation of further research. The participants were only required to complete two reading exercises, and how they interacted with the feedback may have varied with more extensive reading practice. It was evident from low-level learners that they failed to engage with the EF soon after starting the reading exercise and it would be interesting to determine if this behavior would continue after being presented with a greater number of reading passages. Another limitation was how the data was collected, as it depended on the participants voicing their thoughts while completing the

reading task, which would have increased the cognitive load of the participants. Future research could analyze how students interact with feedback using less cognitively demanding techniques, such as the use of eye-tracking technology.

### Abbreviations

CALL: Computer assisted language learning

C-DA: Computer based dynamic assessment

DA: Dynamic assessment

EF: Elaborated feedback

EFL: English as a foreign language

KCR: Knowledge of correct response

KR: Correctness of the answer

L1: First language

L2: Second language

ZPD: Zone of Proximal Development

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