Comparing English Language Learners’ Perceptions of How Reliable Computer-Based, Teacher-Based, and Peer Feedback Is: A Case Study

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Abstract—The literature emphasises the role of feedback (FB) in writing development, leading to explorations of different types of FB to provide, such as teacher-based FB (TBF), peer feedback (PF) and computer-based feedback (CBF). This quasi-experimental study aimed to investigate EFL learners’ perceptions of the reliability of TBF, PF and CBF. The participants (n = 40) were Saudi male EFL students in a BA English programme at a Saudi university. The study employed an experimental group (n = 21) and a control group (n = 19). For data collection, pre- and post-intervention questionnaires were administered. The intervention exposed the participants to giving and receiving PF and introduced them to CBF. Following training in providing PF and using the automated system, the participants went through four cycles of writing during which they developed four essays; with each essay, PF and CBF were employed to produce multiple drafts. The main findings indicated that TBF was perceived to be the most reliable type of FB, and that CBF was considered more reliable than PF. Additionally, our findings suggest that the more students are exposed to CBF, the more likely they are to accept it. Pedagogical implications arising from these findings are also discussed.

Index Terms—feedback, automated systems, reliability, academic writing, perceptions

I. INTRODUCTION

In most EFL countries, English dominates to such an extent that many institutions shift much of their attention to teaching English. In fact, English has become the language of instruction in several undergraduate and graduate programmes. This has created an increased demand for higher education (HE) institutions in EFL countries to provide high-quality English language teaching. In academia, the focus of English teaching is on the four language skills, with writing skills being given the most attention. Writing is the main form of communication between students and their instructors, and instructors base their assessments mainly on students’ written work (e.g. homework, assignments, projects and reports). According to the literature on L2 teaching and learning, how to develop writing skills is clearly of significant concern to researchers and practitioners. Therefore, it appears that writing plays a prominent role in teaching and learning in general (Bitchener & Ferris, 2012; Cho & Schunn, 2007; Gibbs & Simpson, 2004).

An aspect of language learning that is regarded as an essential component for learning development is the provision of feedback (FB) to learners (Gibbs & Simpson, 2004; Haigh, 2007; Lee, 2007; Miller, 2009). Hyland and Hyland (2006) argued that FB had a positive impact on language proficiency and stimulated learners’ motivation to learn languages. For these reasons, the nature of FB and how best to provide it in L2 contexts has been explored. In English writing teaching, several FB types have been identified, such as teacher feedback (TBF), peer feedback (PF) and computer-based feedback (CBF). The literature shows that TBF and PF have been thoroughly investigated from different perspectives (Bitchener & Ferris, 2012; Ferris & Roberts, 2001; Reid, 1997; Rollinson, 2005), but CBF has yet to be similarly examined. FB generated by computers is a relatively new topic that has gained much attention in recent years, in part because of the rapid development in technology and educational needs (Burkhart et al., 2020; Chang et al., 2017; El Ebyary & Windeatt, 2017; Lachner & Neuburg, 2019; Zaini & Mazdayasna, 2015), and in part because of the COVID-19 pandemic that the world has experienced since early in 2020. Investigations into CBF have branched out beyond the domain of language learning to include other learning domains such as accountancy (Helfaya, 2019) and medicine (Chang et al., 2017).

Previous research has focused on investigating learners’ perceptions of the educational environments offered to them (Chien et al., 2020; Chou, 2020; Fu et al., 2019; Sletten, 2017; Wei & Chou, 2020). More specifically, a common practice associated with FB research is to explore learners’ perceptions of the FB provided to them regarding their written texts (Cohen & Cavalcanti, 1990; Lizzio & Wilson, 2008; Peterson & Irving, 2008). Several studies have concluded that integrating technology into teaching and learning languages can positively influence the learning process (Cheung & Slavin, 2012; Li, 2006; Li, 2021; Zaini & Mazdayasna, 2015). In fact, technology can change learning experiences and quality by introducing innovative methods and sources for language learning and teaching that can...
create a student-centred situation, engage learners deeply in their own learning and allow them to become active rather than passive learners (Chang & Windeatt, 2021; Walker & Patel, 2018). A number of studies have asserted that more learning outcomes will be achieved if learners have already formed positive perceptions of the integration of technology into their own learning processes (Alzahrani & O’Toole, 2017; Wei & Chou, 2019); as a result, it can facilitate deeper learning (Mohamed, 2008). Although the literature reflects an increasing interest in CBF in L2 writing, it provides very limited evidence that this area has been explored in the context of higher education in Saudi Arabia, especially in terms of perceptions of CBF. English is taught in Saudi Arabia as a foreign language (i.e. in an EFL context), and CBF is a new concept in higher education which may or may not be accepted by learners. To my knowledge, only one study has explored CBF and PF in Saudi higher education (Alnasser, 2018). However, the scope of that study was whether PF and CBF can jointly replace teacher FB, which is completely different from the scope of the current study. This study aims to investigate how Saudi EFL learners perceive the reliability of TBF, PF and CBF, and which of these three sources are perceived as more reliable. This study holds that this investigation can provide insights into the nature of the three types of FB and that critical pedagogical implications can accordingly be drawn.

II. BACKGROUND

A. The Nature of Writing Skills and Their Development

EFL Practitioners around the world are frequently concerned with the deterioration of their learners’ writing skills (Cho & Schunn, 2007), a concern that justifies the predominant interest in examining the nature of this skill and how it can be improved. In fact, it has been proposed that writing skills correlate with other language skills in that the better the writing skills, the better the other language skills become, and vice versa (McCutchen, 2011; Gomez et al., 1996). Cho and Schunn (2007) argue that students with well-developed writing skills are expected to overcome difficulties in most disciplines because their success is demonstrated mainly by measuring their knowledge in written form. Many HE institutions worldwide admit international students on condition that they meet the language requirements of an English standardised test (e.g. TOFEL, IELTS) and normally require that they meet a specific level in the writing component. Such conditions suggest that mastery of the English language is important, and that mastery of writing skills is particularly important for success in international higher studies.

Since the early 1970s, FB has been at the heart of writing education, with a focus on how to employ it effectively to achieve significant learning outcomes. This trend emerged to cope with the shift from teacher-centred to learner-centred teaching approaches in an attempt to allow FB to promote the learning of writing (Hyland & Hyland, 2006). Phuwichit (2016) argued that FB promoted writing development, as it informatively signified students’ weaknesses (to overcome them) and strengths (to further support them). Here, the manner of FB delivery was crucial and influenced the motivation and perceptions of learners toward the learning situation (Grabe & Kaplan, 1996). Van Steendam et al. (2010) hold that for FB to be effective, it should be provided in an adequate and timely manner. Adequate FB in writing is described as ‘detailed feedback which addresses global concerns in a text, uses metalanguage to diagnose textual problems, and suggests specific revisions’ (ibid, p. 319) and can significantly impact learning (Tang & Thitecott, 1999; Van Steendam et al., 2010). Timely FB refers to FB that students receive shortly after completing a task (Brown et al., 2006; OECD, 2005). Other studies have gone this area of inquiry to provide even more effective FB and have examined areas such as whether the focus should be on global or local writing issues (Hyland, 2003; Min, 2008; Truscott & Hsu, 2008) and whether the FB should be focused or selective (Ferriss, 1995; Gibbs & Simpson, 2002).

Nonetheless, practitioners who teach writing skills in higher education may encounter difficulties in providing timely and adequate FB to their students for several reasons. For instance, the number of students participating in higher education is increasing every year, and part of the requirements is to master writing skills in preparation for their academic studies. The nature of writing is not only complex – it is seen as more complex than other language skills, and the proper way to learn writing skills is by producing multiple drafts (Min, 2008). These factors may put practitioners in a difficult situation by preventing them from offering every student the attention they need (Grimes & Warschauer, 2010). It has been argued that some L2 students worldwide expressed dissatisfaction with the FB they received because they perceived it as insufficient and inadequate (Huxham, 2007). El Ebyary and Windeatt (2010, p. 122) proposed a way around this dilemma by integrating technology, specifically by employing the ‘intelligent computer-assisted language learning (CALL)’ They define this concept as ‘computer applications which can interact with the material to be learned, including providing meaningful feedback and guidance’ (ibid, p. 122).

B. Teacher and Peer Feedback

Hyland and Hyland (2006) argued that effective FB has several modes that enable two parties to interact with one another when giving and receiving FB. Of course, teachers are the most traditional providers of FB to learners. Learners in EFL contexts attach a great deal of importance to the written responses they receive from their instructors and value them even more than verbal responses (Hyland & Hyland, 2006). Writing conferences between instructors and students (i.e. one-to-one mediation) are commonly employed to provide feedback and discussion, and to highlight concerns observed in written texts. Williams (2002) noted that the Vygotskian concept of scaffolding is thought to be closely related to these conferences, as they can significantly develop writing skills. However, providing TBF proved to be
The current study was a quasi-experiment in the Saudi EFL context. It explored Saudi students’ perceptions of the reliability of TBF, PF and CBF and compared them to one another. We administered a pre-intervention questionnaire to both a control group and an experimental group. After the intervention, we administered a post-intervention questionnaire to the experimental group only. The research questions addressed in this study were as follows:

RQ 1: How do Saudi EFL learners perceive the reliability of TBF, PF and CBF?

RQ2: Which of the three FB types do Saudi EFL learners find the most and least reliable?

A. Study Sample

The study was conducted in a higher education English department in Saudi Arabia that offers BA, MA, and PhD programmes in English language-related fields. The participants were male Saudi BA learners. Their study programme offered five compulsory writing courses. The researcher took over the teaching of a level 3 writing course (year 2 of the programme) that comprised the experimental group. A different group of students from the same course was selected for the control group. After the intervention, we administered a post-intervention questionnaire to the experimental group only.
by a different instructor was used for data collection (the control group). Prior to this course, the participants had attended two writing courses in the same programme. The experimental group (taught by the researcher) consisted of 21 students, and the control group consisted of 19 students (a total of 40 students).

**B. Instrument and Procedures**

As mentioned earlier, a pre- and post-intervention questionnaire was administered. The questionnaire included an introductory section that explained the purpose of the study and provided key definitions. The first section enquired about their background regarding the three types of FB (TBF, PF and CBF). The second section provided 15 statements measuring the respondents’ perceptions of the three types of FB (five statements each). A five-point Likert scale was adopted for these statements (*strongly agree*, *agree*, *not sure*, *disagree*, *strongly disagree*). The questionnaire concluded with an open-ended section that allowed the participants to share further thoughts.

The data collection procedure started with an explanation of the purpose of the study and the expected procedures, and consent to participate in the study was obtained. Immediately after that, the pre-intervention questionnaires were administered to the two groups of students. Following the teaching curriculum, students in the experimental group were taught essay writing for two weeks, three hours per week. They were given exemplar essays to examine and had to develop two of their own essays. The researcher provided FB on these essays and required them to produce a final improved draft (one at a time). Students were then trained to provide PF, practice feedback provision and conduct FB conferences between themselves. Then, an automated system was introduced (Criterion, an ETS international educational service); participants were shown how to work with the system, how to submit essays and receive CBF and how to incorporate the generated FB. In the following weeks, the participants went through four cycles of essay writing, in which they developed multiple drafts of four essays. Each cycle started with the development of a first draft which was provided with PF. A second draft was then developed and submitted to the automated system. A final draft based on the FB generated by the automated system was then developed. After exposure to this treatment, a post-intervention questionnaire was administered to measure the differences, if any, in participants’ perception.

**IV. Analysis and Results**

This section presents the results obtained from the pre- and post-intervention questionnaires.

**A. Survey Items**

The introductory section of the pre-intervention questionnaire three items enquired concerning participants’ previous experience with TBF, PF and CBF (Table 1). With regard to TBF, the majority reported receiving it from their instructors on a regular basis; specifically, 45% ‘Sometimes’ received it and 35% received it ‘Often’ (totalling 80%). This finding establishes that the majority of the participants were already familiar with TBF. With regard to PF, only 40% of the participants had received it; the larger proportion (60%) had not received it. This suggests that PF as a learning tool has been employed in the Saudi context, but not to a great extent, and that participants have partial awareness of the nature of the technique. Finally, the majority (85%) reported not receiving CBF in the past, suggesting unfamiliarity with the nature of CBF. In brief, the majority of participants in the study were very familiar with the nature of TBF, less familiar with PF, and unfamiliar with CBF.

| Scale      | Frequency | Percentage |
|------------|-----------|------------|
| **TBF: How often did you receive TBF on your writing?** |
| Never      | 2         | 5.0        |
| Rarely     | 6         | 15.0       |
| Sometimes  | 18        | 45.0       |
| Often      | 14        | 35.0       |
| Total      | 40        | 100.0      |

| Scale      | Frequency | Percentage |
|------------|-----------|------------|
| **PF: Have you received PF in the past?** |
| Yes        | 16        | 40.0       |
| No         | 24        | 60.0       |
| Total      | 40        | 100.0      |

| Scale      | Frequency | Percentage |
|------------|-----------|------------|
| **CBF: Have you received automated FB in the past?** |
| Yes        | 6         | 15.0       |
| No         | 34        | 85.0       |
| Total      | 40        | 100.0      |

The second section of the pre-intervention questionnaire included 15 items divided into three themes, namely the reliability of the three types of feedback (TBF, PF and CBF). Under each theme, five identical items addressed aspects relevant to perceptions of how reliable each FB type was (Table 2). The five items were:

1. The reliability of the FB type (an overall statement).
2. Desire to avoid the type of FB.
3- Recommending the type of FB for writing classes.
4- The acceptance of the received FB.
5- The fairness of the FB type in evaluating learners’ essays.

### Table 2

| Items                                                                 | Mean (M) | Std. Deviation (SD) | N  |
|----------------------------------------------------------------------|----------|---------------------|----|
| TBF: 1 The FB provided by the instructor is reliable                 | 4.3750   | 0.58562             | 40 |
| TBF: 2 I wish for my instructor to avoid providing FB on my texts   | 2.2250   | 0.35661             | 40 |
| TBF: 3 I recommend using TBF in writing classes                     | 4.4750   | 0.59661             | 40 |
| TBF: 4 I will always use the FB I receive from my instructor        | 4.5000   | 0.55470             | 40 |
| TBF: 5 TBF is a fair way to evaluate my written texts               | 4.3000   | 0.82275             | 40 |
| PF: 1 The FB provided by my peers is reliable                       | 2.2750   | 0.96044             | 40 |
| PF: 2 I wish for my peers to refrain from providing FB on my texts  | 3.2750   | 1.26060             | 40 |
| PF: 3 I recommend using PF in writing classes                       | 2.9750   | 1.20888             | 40 |
| PF: 4 I will always use the feedback I receive from my peers        | 2.9000   | 1.15023             | 40 |
| PF: 5 PF is a fair way to evaluate my written texts                 | 3.0000   | 0.96077             | 40 |
| CBF: 1 The FB provided by the computer is reliable                  | 3.6250   | 1.19158             | 40 |
| CBF: 2 I wish for my instructor to avoid enabling computers to provide FB on my texts | 2.5500   | 1.03651             | 40 |
| CBF: 3 I recommend using CBF in writing classes                     | 3.8250   | 1.08338             | 40 |
| CBF: 4 I will always use the FB I receive from my computer         | 2.9250   | 1.04728             | 40 |
| CBF: 5 CBF is a fair way to evaluate my written texts               | 3.6250   | 1.05460             | 40 |

The Reliability of the FB.

Participants’ perceptions of the reliability of the three types of FB varied (Table 2). TBF was perceived to be the most reliable type of FB (M = 4.37 out of 5), which is an expected finding since the instructor has knowledge and experience in writing instruction and expertise in providing FB. PF was reported to be the least reliable type of FB (M = 2.27), possibly because of similar weaknesses to those reported in the literature regarding this technique. Interestingly, CBF was reported to be more reliable than PF (M = 3.62) even though participants had no previous experience with it. This suggests participants’ interest in and acceptance of the integration of this type of FB into writing classes.

1. Desire to Avoid FB Type

With regard to which of the three types of FB the participants wished to avoid, the majority did not want to avoid TBF (M = 2.22; SD = 0.35), to a lesser extent the participants did not want to avoid CBF (M = 2.55; SD = 1.03), but were unsure about whether to avoid PF (M = 3.27; SD = 1.26). Further analysis showed that the standard deviations concerning PF and CBF were quite large, suggesting that there was a proportion of students who were not in agreement regarding the types of FB they wished to receive. The literature has suggested advantages for each type and has also raised concerns regarding each type influenced participants’ preferences, leading to such disagreements.

2. Recommending FB Types for Writing Classes

In terms of recommending each type of FB for future classes, TBF was recommended most often (M = 4.47), PF was recommended least often (M = 2.97), and CBF was recommended more than PF but less than TBF (M = 3.82). That participants perceive CBF to be more acceptable than PF is an interesting finding that possibly suggests that interaction with computers is easier and faster than with peers. The findings also suggest that TBF is perceived to be integral to writing classes owing to its reliable nature.

3. Acceptance of FB

If students use the FB they receive, it indicates that they find it valid and, therefore, reliable. The majority of the participants reported that they would use TBF that they receive (M = 4.5). They were hesitant to use PF (M = 2.90; SD = 1.15) and CBF (M = 2.92; SD = 1.04). Statistical analysis indicated that the standard deviations were large, suggesting disagreement regarding this notion. It may also suggest that there are different proportions of participants: those who wish to use it, those who do not wish to use it, and those who are unsure and wanting more practice before making a decision. In general, these findings indicate that when TBF is offered, learners will accept it as the primary type of FB for text improvement and other sources will possibly be marginalised.

4. The Fairness of the FB Type in Evaluating Learners’ Essays

Regarding the fairness of the three FB types, the majority reported TBF as the fairest (M = 4.3), PF as the least fair (M = 3.00), and CBF as relatively fair (M = 3.62), but not to the extent of comparing CBF with TBF. It can be argued that fair FB is more likely to be accepted and incorporated into written text. In this regard, TBF was viewed as fairer than the other two types; therefore, it was more likely to be accepted by the participants (see earlier analysis). Additionally, these results in general concur with the results of previous studies, and a pattern emerges in which TBF is always ranked at the top, followed by CBF, and PF is always rated as the least valued.

Statistical analysis yielded few concerns, especially in relation to the large standard deviations relevant to some items. This called for a post hoc analysis, in which an in-depth analysis was conducted on individual responses, and a number
of patterns were observed. First, several participants highly recommended integrating CBF into writing classes while simultaneously expressing hesitance to use computer-generated FB. This may indicate their desire for innovative approaches in writing classes but not to the extent that they were willing to rely fully on this type of FB. A second pattern that was observed concerned participants who did not recommend PF; they reported that it was not fair and that they would not use it if it were offered to them. Concerns regarding the reliability of PF were commonly recorded throughout the data, which is in line with this pattern.

The post-intervention questionnaire included 10 items concerning only PF and CBF. TBF-related items were excluded because the participants were already familiar with their nature owing to their previous experiences (this is evident in their responses reflected in Table 1). For the analysis, the means of the pre- and post-intervention responses were compared using the Wilcoxon signed-rank test to investigate whether there were statistically significant differences in the responses after exposure to the intervention (Table 3). Among the ten items, the test yielded two statistically significant differences. First, concerning the use of CBF, the perception average value (item 4) was \( M = 2.93 \); after the intervention, it increased to \( M = 4 \), with a difference between the two means of 1.07. The Wilcoxon test revealed that this difference was statistically significant, \( \alpha = 0.002 \). Second, the participants started off being relatively unsure about whether they wished to avoid CBF in writing classes (\( M = 2.55 \)); after the treatment (\( M = 1.71 \)), there was a statistically significant difference (\( \alpha = 0.04 \); with a mean difference of -0.84). The mean differences concerning the other items were not found to be significant; therefore, there was no need to elaborate on them (see Appendix). In general, these findings suggest that perceptions regarding the nature and reliability of CBF and its reliability can be enhanced with further exposure, a finding that may not apply to PF. In other words, learners may have more preference for automated rather than peer FB in writing classes, although TBF remains their first choice.

### Table 3

**Comparison of Means Between the Experimental Group’s Pre- and Post-Intervention Responses Regarding PF and CBF**

| Wilcoxon Signed Ranks Test | Pre & Post: PF is reliable | Pre & Post: Peers refrain from providing FB | Pre & Post: Recommending PF in writing classes | Pre & Post: Using received PF | Pre & Post: Fairness of PF | Pre & Post: CBF is reliable | Pre & Post: Avoid offering CBF | Pre & Post: Recommending CBF in writing classes | Pre & Post: Using received CBF | Pre & Post: Fairness of CBF |
|---------------------------|---------------------------|--------------------------------------------|---------------------------------------------|----------------------------|----------------------------|---------------------------|--------------------------------|---------------------------------------------|--------------------------------|----------------------------|
| Z                         | -0.072b                   | -0.826b                                   | -1.531b                                     | -1.525b                    | -1.032b                    | -0.660b                   | -1.979b                        | -1.734b                              | -3.153b                       | -1.330b                    |
| Asymp. Sig. (2-tailed)    | 0.942                     | 0.409                                    | 0.126                                      | 0.302                      | 0.509                      | 0.484                      | 0.803                           | 0.002                           | 0.183                           |

b. Based on negative ranks.
c. Based on positive ranks.

**B. Open-ended Section**

As mentioned earlier, the questionnaires included an open-ended section to allow participants to express their thoughts on the phenomena under investigation. This section was optional. The pre-intervention responses showed that none of the 40 participants raised any concerns about the reliability of TBF; in fact, they found no weaknesses in it (reported by 18 participants). With regard to PF, 14 participants, 4 of whom were in the experimental group, viewed it as the most unreliable; the FB was described to be ‘wrong’, ‘inaccurate’, ‘unreliable’, ‘difficult to understand’, and so on. Seven participants, two of whom were from the experimental group, also reported CBF to be unreliable but to a much lesser degree. Although several advantages of this type of FB have been described (such as easy access, instantly received FB, and an interesting FB tool), seven participants raised concerns regarding its reliability and clarity. Overall, these findings suggest that participants had full confidence in the reliability of TBF, a lesser degree of confidence in the reliability of CBF, and partial confidence in the reliability of PF. Finally, after exposure to PF and CBF, only six participants raised concerns about the reliability of FB provided by their peers and no concerns were raised regarding CBF. The change in their views suggests that more exposure to these two types of FB might increase learners’ concerns about PF and reduce their interest in CBF.
V. DISCUSSION AND CONCLUSION

In EFL contexts, practitioners commonly seek best practices in offering educational services concerning English teaching and learning. In these contexts, writing particular emphasis is placed on writing skills, leading many researchers to explore different aspects of developing writing skills (Latifi et al., 2021; Yu, 2021). A common practice for EFL writing instructors is to provide FB to their students on a regular basis, preferably on each draft that they produce. This requirement places a heavy load on the instructors’ shoulders that is likely to lead to a reduction in the frequency with which FB is provided and limit learners’ writing development. This calls for innovation in providing FB by utilising different types of FB, such as PF and CBF (Burkhart et al., 2020; Chang et al., 2017; El Ebyary & Windeatt, 2017; Lachner & Neuburg, 2019; Rollinson, 2005). Since neither PF nor CBF can match the quality of FB provided by the instructor, learners may question the reliability of these two sources. The literature advocates that reliable FB can lead to optimal learning (Ernst & Steinhauser, 2018), and thus it can be argued that positive perceptions regarding reliability may positively impact learning. However, negative perceptions may lead to refraining from deep involvement in the learning process. The current study aimed to investigate EFL learners’ perceptions of the reliability of the three FB types, and the findings are clearly indicative of their perceptions. It was found that the participants viewed FB provided by the teacher as the most reliable. In addition, the findings suggest that learners cannot do without it, even in the presence of other alternatives such as PF and CBF. This finding concurs with that of Alnasser (2013), who explored whether PF and CBF can replace TBF, a notion rejected by that study’s participants. Experienced language instructors have the expertise needed to offer explicit and reliable FB on written texts. This raises learners’ confidence in the FB they receive from their instructors and, therefore, they tend to value and accept it. In this study, the majority of participants reported their willingness to accept and use TBF ($M = 4.50$), reflecting their confidence in their instructors. In contrast, the differences in the overall means in responses between TBF and PF, and TBF and CBF were not nearly comparable, as the differences ranged from 0.81 to 1.6 (with the higher values pertaining to TBF; see Table 2 and Appendix). Nonetheless, CBF scored higher than PF in terms of reliability, fairness and employment in future classes. Not only is CBF perceived as better than PF, but a statistically significant shift in participants’ responses was found after exposure to CBF in that they were willing to use more CBF in their writing and desired more practice with the automated system. No statistically significant changes were found with regard to PF after participants were exposed to it (see Appendix). These findings are supported by the open-ended sections, where concerns were raised more frequently before practice with CBF and PF, and significantly reduced after exposure to these two types of FB. This may indicate that greater exposure to these types of FB can positively impact EFL learners’ perceptions of them.

These findings have pedagogical implications for Saudi Arabia and other EFL contexts. The primary implication is that teacher involvement in providing FB is integral because EFL learners find it to be the most reliable type of information they will ever have. TBF will always provide confidence and comfort to learners in the learning process; therefore, teachers should not limit their FB in writing classes. Of course, such a degree of reliance on this type of FB may dissuade learners from utilising other sources; therefore, teachers need to integrate other types of FB without creating a sense that they may replace TBF. Additionally, if a teacher has the choice of integrating either CBF or PF into a writing class, CBF is recommended as it was seen as more reliable and learners raised fewer concerns about it. Automated systems can be attractive and accurate, and generate instant FB which can be quite supportive to the teacher (Deane et al., 2011; Le, 2021). Teachers are encouraged to have their students submit their texts to automated systems to produce an improved version on which TBF can then be provided. This process can alleviate the teachers’ FB-related burdens and hence enable them to provide more TBF. Finally, the literature suggests that CBF can positively impact learning; the current study found that the more learners are exposed to this type of FB, the more positive their perceptions of it will become. Therefore, considering the rapid development in technology, it is advisable to emphasise CBF in writing classes and to enable learners by providing unlimited access to such systems as an encouragement for learning autonomy and writing skills development.

A limitation of this study is that an analysis of the reliability of the written FB generated by computers and students was beyond its scope. Thus, researchers are encouraged to explore this area and study the nature of FB generated by these two techniques, especially the automated one, because it is a relatively new tool in writing classes. Additionally, further and thorough investigations are needed to answer the question of why EFL learners were hesitant to deem CBF as reliable and yet wanted to work with it in writing classes. Insights in this regard improve the utility of this tool and, therefore, improve the learning experience.
APPENDIX

Table 4
Means of Pre- & Post Responses of the Experimental Group (PF & CBF)

| Pre & Post Items                                             | N  | Mean | Std. Deviation | Minimum | Maximum |
|--------------------------------------------------------------|----|------|----------------|---------|---------|
| Pre: 1 The FB provided by my peers is reliable               | 40 | 2.28 | .960           | 1       | 5       |
| Pre: 2 I wish for my peers to refrain from providing FB on my texts | 40 | 3.28 | 1.261          | 1       | 5       |
| Pre: 3 I recommend using PF in writing classes               | 40 | 2.98 | 1.209          | 1       | 5       |
| Pre: 4 I will always use the feedback I receive from my peers | 40 | 2.90 | 1.150          | 1       | 5       |
| Pre: 5 PF is a fair way to evaluate my written texts         | 40 | 3.0000 | 96077         | 1       | 5       |
| Pre: 1 The FB provided by the computer is reliable           | 40 | 3.63 | 1.192          | 1       | 5       |
| Pre: 2 I wish for my instructor to avoid enabling computers to provide FB on my texts | 40 | 2.55 | 1.037          | 1       | 5       |
| Pre: 3 I recommend using CBF in writing classes              | 40 | 3.83 | 1.083          | 1       | 5       |
| Pre: 4 I always use the FB I receive from my computer        | 40 | 2.93 | 1.047          | 1       | 5       |
| Pre: 5 CBF is a fair way to evaluate my written texts        | 40 | 3.62 | 1.055          | 1       | 5       |
| Post: 1 The FB provided by my peers is reliable              | 21 | 2.38 | 1.244          | 1       | 4       |
| Post: 2 I wish for my peers to refrain from providing FB on my texts | 21 | 3.1905 | 1.53685      | 1       | 5       |
| Post: 3 I recommend using PF in writing classes              | 21 | 2.38 | 1.465          | 1       | 5       |
| Post: 4 I always use the feedback I receive from my peers    | 21 | 3.19 | 1.047          | 1       | 5       |
| Post: 5 PF is a fair way to evaluate my written texts        | 21 | 2.62 | 1.203          | 1       | 5       |
| Post: 1 The FB provided by the computer is reliable           | 21 | 3.76 | .768           | 2       | 5       |
| Post: 2 I wish for my instructor to avoid enabling computers to provide FB on my texts | 21 | 1.7143 | .64365       | 1       | 3       |
| Post: 3 I recommend using CBF in writing classes              | 21 | 3.90 | .831           | 2       | 5       |
| Post: 4 I always use the FB I receive from my computer       | 21 | 4.00 | .894           | 2       | 5       |
| Post: 5 CBF is a fair way to evaluate my written texts       | 21 | 3.5714 | 1.02817      | 2       | 5       |

REFERENCES

[1] Alnasser, S. (2013). A New Form of Peer Feedback Technique: An Investigation into the Impact of Focusing Saudi ESL Learners on Macro Level Writing Features. Ph.D. Thesis. Newcastle University.

[2] Alnasser, S. M. N. (2018). Exploring Student-Writers’ Views on Replacing Teacher Feedback with Peer Feedback and Computer-Based Feedback. Arab World English Journal, 9(3), 345-366.

[3] Alzahrani, M., & O’Toole, J. (2017). The Impact of Internet Experience and Attitude on Student Preference for Blended Learning. Journal of Curriculum and Teaching, 6(1), 65-78. https://doi.org/10.5430/jct.v6n1p65

[4] Bitchener, J., & Ferris, D. (2012). Written Corrective Feedback in Second Language Acquisition and Writing. New York: Routledge.

[5] Brown, W., Lovett, M., Bajzek, D., & Burnette, J. (2006). Improving the Feedback Cycle to Improve Learning in Introductory Biology Using the Digital Dashboard. HGL, USA.

[6] Burkhart, C., Lachner, A., & Nückles, M. (2020). Assisting Students’ Writing with Computer-Based Concept Map Feedback: A Validation Study of the CohViz Feedback System. PLOS ONE, 15(6). e0235209. https://doi.org/10.1371/journal.pone.0235209

[7] Chang, Y., Lee, C., Chen, C., Liao, C., Ng, C., Chen, J., & Chaou, C. (2017). Exploring the Influence of Gender, Seniority and Speciality on Paper and Computer-Based Feedback Provision During Mini-CLEX Assessments in a Busy Emergency Department. Advances in Health Sciences Education, 22(1), 57-67. DOI: 10.1007/s10459-016-9682-9

[8] Chang, H., & Windeatt, S. (2021). Designing and Applying a Moodle-Based E-Textbook for an Academic Writing Course. International Journal of Mobile and Blended Learning, 13(2), 73-95.

[9] Chen, J., White, S., McCluskey, M., Soroui, J., & Chun, Y. (2011). Effects of Computer Versus Paper Administration of an Adult Functional Writing Assessment. Assessing Writing, 16(1), 49-71. https://doi.org/10.1016/j.asw.2010.11.001

[10] Cheung, A., & Slavin, R. (2012). How Features of Educational Technology Applications Affect Student Reading Outcomes: A Meta-Analysis. Educational Research Review, 7(3), 198-215. https://doi.org/10.1016/j.edurev.2012.05.002

[11] Cho, K., & Schunn, C. (2007). Scaffolded Writing and Rewriting in the Disciplines: A Web-Based Reciprocal Peer Review System. Computers and Education, 48(3), 409-426. https://doi.org/10.1016/j.compedu.2005.02.004

[12] Coniam, D. (2009). Experimenting with a Computer Essay-Scoring Program Based on ESL Student Writing Scripts. ReCALL, 21(2), 259-279. https://doi.org/10.1017/S0958343409000147

[13] Cohen, A., & Cavalcanti, M. (1990). Feedback on Compositions: Teacher and Student Verbal Reports. Cambridge: Cambridge University Press.

[14] Dikli, S. (2006). An Overview of Automated Scoring of Essays. Journal of Technology, Learning, and Assessment, 5(1), 1-36.

[15] Deane, P., Quinlan, T., & Kostin, I. (2011). Automated Scoring Within a Developmental, Cognitive Model of Writing Proficiency. ETS Research Report Series, 1, i-93. doi: 10.1002/j.2333-8504.2011.tb02252.x.

[16] El Ebyary, K., & Windeatt, S. (2010). The Impact of Computer-Based Feedback on Students’ Written Work. International Journal of English Studies, 10(2), 121-142. https://doi.org/10.6018/ijes/2010/2/19231

[17] El Ebyary, K., & Windeatt, S. (2017). Eye Tracking Analysis of EAP Student’s Regions of Interest in Computer-Based Feedback on Grammar, Usage, Mechanics, Style and Organization and Development. Occasional Papers in the Development of English Education, 63(1), 5-30. DOI: 10.21608/OPDE.2017.87705

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[18] Ernst B. & Steinhauser M. (2018). Effects of Feedback Reliability on feedback-Related Brain Activity: A feedback valuation Account. *Cognitive, Affective, & Behavioural Neuroscience, 18*, 596-608. https://doi.org/10.3758/s13415-018-0591-7
[19] Ferris, D. (1995). Student Reactions to Teacher Response in Multiple-Draft Composition Classrooms. *TESOL Quarterly, 29*(1), 33-53. https://doi.org/10.2307/3587804
[20] Ferris, D., & Roberts, B. (2001). Error Feedback in L2 Writing Classes? *Journal of Second Language Writing, 10*(3), 161-184. https://doi.org/10.1016/S1060-3743(01)00039-X
[21] Gibbs, G., & Simpson, C. (2002). *How Assessment Influences Student Learning: A Conceptual Overview*. CHEP: The Open University.
[22] Gibbs, G., & Simpson, C. (2004). *Conditions Under Which Assessment Supports Student Learning*. *Learning and Teaching in Higher Education, 1*(1), 3-31.
[23] Gomez, R., Parker, R., Lara-Alecio, R., & Gomez, L. (1996). *Process Versus Product Writing with Limited English Proficient Students*. *Bilingual Research Journal, 20*(2), 209-233. https://doi.org/10.1080/15235882.1996.10686828
[24] Grabe, W., & Kaplan, R. P. (1996). *Theory and Practice of Writing: An Applied Linguistic Perspective*. London: Longman.
[25] Grimes, D., & Warschauer, M. (2010). Utility in a Fallible Tool: A Multi-Site Case Study of Automated Writing Evaluation. *Journal of Technology, Learning, and Assessment, 8*(6), 1-43.
[26] Haigh, M. (2007). Sustaining Learning Through Assessment: An Evaluation of the Value of a Weekly Class Quiz. *Assessment and Evaluation in Higher Education, 32*(4), 457-474. https://doi.org/10.1080/02602930600898593
[27] Helfaya, A. (2019). Assessing the Use of Computer-Based Assessment-Feedback in Teaching Digital Accountants. *Accounting Education, 28*(1), 69-99. https://doi.org/10.1080/09639284.2018.1501716
[28] Hoq, M. (2020). E-Learning During the Period of Pandemic (COVID-19) in the Kingdom of Saudi Arabia: An Empirical Study. *American Journal of Educational Research, 8*(7), 457-464. doi:10.12691/education-8-7-2.
[29] Hu, G. (2005). Using Peer Review with Chinese ESL Student Writers. *Language Teaching Research, 9*(3), 321-342. https://doi.org/10.1080/10138098516901690a
[30] Huxham, M. (2007). Fast and Effective Feedback: Are Model Answers the Answer? *Assessment and Evaluation in Higher Education, 32*(6), 601-611. https://doi.org/10.1080/02602930601116946
[31] Hyland, K. (2003). *Second Language Writing*. Cambridge: Cambridge University Press.
[32] Hyland, K., & Hyland, F. (2006). *Interpersonal Aspects of Response: Constructing and Interpreting Teacher Written Feedback*. Cambridge: Cambridge University Press.
[33] Jarom, E., Woodruff, E., Bryson, M., & Lindsay, P. (1991). The Effects of Revising with a Word Processor on Writing Composition. *Research in the Teaching of English, 26*, 167-193.
[34] Lachner, A., & Neuburg, C. (2019). Learning by Writing Explanations: Computer-Based Feedback About the Explanatory Cohesion Enhances Students’ Transfer. *Instructional Science, 47*(1), 19-37. https://doi.org/10.1007/s11251-018-9470-4
[35] Latifi, S., Noroozi, O., Hatami, J. & Biemans, H. (2021). How Does Online Peer Feedback Improve Argumentative Essay Writing? *Innovations in Education and Teaching International, 58*(2), 195-206. https://doi.org/10.1080/14703297.2019.1687005
[36] Lee, I. (2007). Feedback in Hong Kong Secondary Writing Classrooms: Assessment for Learning or Assessment of Learning? *Assessing Writing, 12*(3), 180-198. https://doi.org/10.1016/j.asw.2008.02.003
[37] Leki, I. (1990). Potential Problems with Peer Responding in ESL Writing Classes. *CATESOL Journal, 3*, 5-19.
[38] Li, J. (2006). *The Mediation of Technology in ESL Writing and Its Implications for Writing Assessment*. *Assessing Writing, 11*(1), 5-21. https://doi.org/10.1016/j.asw.2005.09.001
[39] Li, Z. (2011). Teachers in Automated Writing Evaluation (AWE) System-Supported ESL writing classes: Perception, implementation, and influence. *System, 39*, 1-14. https://doi.org/10.1016/j.system.2010.10.009
[40] Lizzio, A., & Wilson, K. (2008). Feedback on Assessment: Students’ Perceptions of Quality and Effectiveness. *Assessment and Evaluation in Higher Education, 33*(3), 263-275. https://doi.org/10.1016/j.asseval.2008.07.001
[41] McCutchen, D. (2011). From Novice to Expert: Implications of Language Skills and Writing Relevant Knowledge for Memory during the Development of Writing Skill. *Journal of Writing Research, 3*(1), 51-68. http://dx.doi.org/10.17239/jwrc-2011.03.013
[42] Miller, T. (2009). Formative Computer-Based Assessment in Higher Education: The Effectiveness of Feedback in Supporting Student Learning. *Assessment and Evaluation in Higher Education, 34*(2), 181-192. https://doi.org/10.1080/02602930801956075
[43] Min, H. (2008). Reviewer Stances and Writer Perceptions in EFL Peer Review Training. *English for Specific Purposes, 27*(3), 285-305. https://doi.org/10.1016/j.esp.2008.02.002
[44] Mohammed, A. (2008). Effects of Active Learning Variants on Student Performance and Learning Perceptions. *International Journal for the Scholarship of Teaching and Learning, 2*(2), 1-15. https://doi.org/10.20429/ijstl.2008.020211
[45] Morgan, H. (2020). Best Practices for Implementing Remote Learning During a Pandemic. *The Clearing House, 93*(3), 135-141. https://doi.org/10.1080/00098655.2020.1751480
[46] OECD (2005). *Formative Assessment: Improving Learning in Secondary Classrooms*. Centre for Educational Research and Innovation. Paris: OECD Publication Paris.
[47] Peterson, E., & Irving, S. (2008). Secondary School Students’ Conceptions of Assessment and Feedback. *Learning and Instruction, 18*(3), 238-250. https://doi.org/10.1016/j.learninstruc.2007.05.001
[48] Powers, D., Burstin, J., Chodorow, M., Fowles, M., & Kukich, K. (2001). Stumping e-Rater: Challenging the Validity of Automated Essay Scoring. *Computers in Human Behavior, 18*(2), 103-134. https://doi.org/10.1016/S0747-5632(01)00052-8
[49] Phuwichit, K. (2016). *A Study of Teacher Feedback on Peer Feedback in EFL Writing and Its Relation to Self-Regulation*. PhD Thesis. University of Southampton.
[50] Reid, J. (1997). Responding to ESL Student Language Problems: *Error Analysis and Revision Plans*. Boston: Heinle & Heinle.
[51] Rollinson, P. (2005). Using Peer Feedback in the ESL Writing Class. *ELT Journal, 59*(1), 23-30. https://doi.org/10.1093/elt/cci003
[52] Rudner, L., & Liang, T. (2002). Automated Essay Scoring Using Bayes’ Theorem. *Journal of Technology, Learning, and Assessment*, (1(2)), 1-22.

[53] Tang, G., & Thietcott, J. (1999). Peer Response in ESL Writing. *TESL Canada Journal*, 16(2), 20-38. https://doi.org/10.18806/tesl.v16i2.716

[54] Tanveer, M., Bhaumik, A., Hassan, S., & U Haq, I. (2020). Covid-19 Pandemic, Outbreak Educational Sector and Students Online Learning in Saudi Arabia. *Journal of Entrepreneurship Education*, 23(3), 1-14.

[55] Truscott, J., & Hsu, A. (2008). Error Correction, Revision, and Learning. *Journal of Second Language Writing*, 17(4), 292-305. https://doi.org/10.1016/j.jslw.2008.05.003

[56] Van Steendam, E., Rijlaarsdam, G., Sercu, L., & Van den Bergh, H. (2010). The Effect of Instruction Type and Dyadic or Individual Emulation on the Quality of Higher-Order Peer Feedback in EFL. *Learning and Instruction*, 20(4), 316-327. https://doi.org/10.1016/j.learninstruc.2009.08.009

[57] Vygotsky, L. (1978). *Mind in Society: Development of Higher Psychological Processes*. USA: Harvard University Press.

[58] Walker, S., & Patel, A. (2018). More than Skills: What Can Approaches to Digital Literacies Learn from Academic Literacies? *Journal of Learning and Teaching in Higher Education*, 6(2), 1-29.

[59] Wei, H., & Chou, C. (2019). Relationships Among College Learners’ Online Learning Perceptions, Behaviors, and Achievements via the Self-Determination Theory Approach. Toronto: AERA Annual Meeting Proceedings.

[60] Wei, H., & Chou, C. (2020). Online Learning Performance and Satisfaction: Do Perceptions and Readiness Matter? *Distance Education*, 41(1), 48-69. https://doi.org/10.1080/01587919.2020.1724768

[61] Williams, J. (2002). Undergraduate Second Language Writers in The Writing Center. *Journal of Basic Writing*, 21(2), pp. 73-91. https://www.jstor.org/stable/43744176, DOI: 10.3751/jbw-J.2002.21.2.06.

[62] Yang, M., Badger, R., & Yu, Z. (2006). A Comparative Study of Peer and Teacher Feedback in a Chinese EFL Writing Class. *Journal of Second Language Writing*, 15(3), 179-200. https://doi.org/10.1016/j.jslw.2006.09.004

[63] Yu, S. (2021). Giving Genre-Based Peer Feedback in Academic Writing: Sources of Difficulties and Challenges. *Assessment & Evaluation in Higher Education*, 46(1), 36-53. https://doi.org/10.1080/02602938.2020.1742872

[64] Zaini, A., & Mazdayasna, G. (2015). The Impact of Computer-Based Instruction on the Development of EFL Learners’ Writing Skills. *Journal of Computer Assisted Learning*, 31(6), 516-528. https://doi.org/10.1111/jcal.12100

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