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Effect of teachers' asynchronous e-feedback and synchronous oral feedback on English language learners' writing accuracy

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This research aims to assess the efficacy of electronic feedback (e-feedback) and traditional oral feedback on undergraduate students' English writing over 12 weeks of teaching. Three treatment groups were involved: Asynchronous written e-feedback through Microsoft Word Track Changes; teacher–student oral metalinguistic conferencing; no feedback control group. Two grammatical features (i.e., conjunctions and articles), the most problematic forms, were targeted to determine the effect of feedback on these grammatical features. One-way ANOVA test resulted to reveal that the feedback-receiving group performed better than those given no feedback at all. Furthermore, students who received e-feedback performed much better in improving conjunctions errors than those who received oral feedback. The study suggests to train learners and teachers toward e-feedback for better learning of English language.

KEYWORDS

corrective feedback, track changes, second language learning, oral feedback, electronic feedback

Introduction

Teacher feedback on second language (L2) writing has gained importance in second language writing research, since learners expect to receive feedback and teachers see it as a valuable source of guidance for students' writing (Guénette, 2007; Bitchener and Ferris, 2012). Recent studies in second language context has confirmed that teachers' feedback support linguistic development in new pieces of writing (Ellis et al., 2008). However, teachers need to decide which type of errors to highlight, how explicit or implicit the feedback should be, and the process through which they need to offer it (Elola and Oskoz, 2016).

Following the rapid development of technologies such as blogs, wikis, social media, teachers can provide electronic feedback (e-feedback hereafter) to their L2 learners in the L2 writing class by using different tools like screencasting software (Ducate and Arnold, 2012), text chat (Sauro, 2009; Razagifard and Razzaghifard, 2011; Namaziandost et al., 2021) and Microsoft (MS) Track Changes (Tuzi, 2004; AbuSeileek, 2013; Ene and Upton, 2014).

Some of the studies have used an experimental design to know the effect of e-feedback (using word comments, track changes) overtime (i.e., AbuSeileek, 2013; AbuSeileek and Abualsha'r, 2014; Namaziandost et al., 2021; Nejad et al., 2021), while a few others conducted studies where different e-feedbacks (using screencast, word comments, text chat and voice chat) were compared to know their effect on the revised drafts of writing (i.e., Ene and Upton, 2014, 2018; Elola and Oskoz, 2016; Shintani, 2016). No systematic attempt has been made to focus on teachers' e-feedback and compare it with a traditional face-to-face teacher's oral feedback in developing L2 learners' writing overtime, to see whether one medium of providing feedback should replace the other.

Regarding the situation of present investigation, Pakistan, instructors mostly employ traditional ways of providing feedback and teaching English writing by using product approach (Haider, 2012). Teachers have to spend a lot of time in correcting students' mistakes, as errors are not considered as the natural part of students' learning rather taken as a sign of failure. Haider (2012) mentioned that despite providing teachers' dominant feedback, students take such feedback for granted and do not bother to notice their errors or put an effort to correct them. For this reason, students fail to acquire the required competency in writing skills despite studying the English language as a compulsory subject from grade 6 to the degree level (Warsi, 2004). Furthermore, teachers are not given enough opportunities to integrate technology into education to provide learners with technology-enhanced e-feedback, because limited facilities and infrastructure available related to ICT (Information and Communication Technology) (Khan et al., 2018). Although a program entitled "E-Learning" has been launched by the government to spread and improve language learning with the help of technology, it has not been implemented or executed effectively. What is more important for teachers and researchers is to determine how to use technology more effectively in curricula (Tuzi, 2004). Hence there is a need to provide e-feedback on students' text by highlighting erroneous part as a pedagogical strategy and investigate its efficacy in improving English writing accuracy by comparing it to the traditional way of providing teachers' direct feedback. It will assist teachers to better understand how e-feedback works and/or can impact L2 writing, suggesting processes to incorporate this writing environment in L2 writing programs.

All of the above mentioned technological tools appeared to provide teachers the facility to deliver oral or written feedback, for instance, in the form of error codes, comments, audio, or video to be watched. Within the framework of activity theory, the study will thus explore the mediation of the medium (traditional face-to-face feedback versus Word track changes) and mode (oral or written), and to know the extent to which technological tool, i.e., MS Word track changes, will affect the nature of the instructor's written feedback.

Literature review

Conventionally, teachers give written feedback only after a learner has completed a writing task (delayed feedback), whereas a teacher monitoring written task in class can generally provide oral feedback immediately or shortly after a learner produces an error (Shintani, 2016). In this study, traditional face-to-face feedback takes the form of providing explanation about grammatical rules by the teacher and elaborates it through instances to aid students better understand and apply those rules to develop their writing accuracy (Bitchener, 2008; Bitchener and Knoch, 2009). E-feedback takes the form of Word Track Changes feature which allows writers to identify and correct erroneous statements (AbuSeileek, 2013).

There are some of the research that focused on the comparison between e-feedback and traditional face-to-face feedback (i.e., Liu and Sadler, 2003; Tuzi, 2004; Song and Usaha, 2009; Ciftci and Kocoglu, 2012; Ho, 2015; Pham, 2021). Except a study by Liu & Sadler and Ho, all of these studies reported that e-feedback is superior to traditional face-to-face feedback in terms of the uptake rate. Among these, Liu and Sadler (2003) compared feedback outcomes between two groups of ESL participants with one providing e-feedback (through MS Word and MOO interaction) and the other providing face-to-face feedback. They found that e-comments were less effective than those in the traditional feedback group. In Tuzi (2004) and Song and Usaha's (2009) studies where 20 third-year Chinese EFL university students and 20 L2 writers were examined using Moodle's forum and data-driven website as an e-feedback source, respectively. Another positive effect of e-feedback was revealed in a study by Ciftci and Kocoglu (2012) and Pham (2021) who used Google Docs and blogs to provide e-feedback, respectively. Ho (2015) employed *Online Meeting* software and MS Word as e-feedback source and compared to the other group who received face-to-face feedback. Ho (2015) claimed that although the students preferred e-comments via Word and online face-to-face feedback, they found face-to-face feedback more effective. The positive effects of e-feedback might be because of the fact that, unlike face-to-face feedback, it put less pressure on students (Ho and Savignon, 2007). Latifi et al. (2019) used online platform to provide e-feedback,

named EduTech and found positive effects of this e-feedback on writing development.

Bitchener and Ferris (2012) argued that learners' current accuracy levels is firstly established by pre-test writing to measure any increase in learning and accuracy improvement as a result of feedback. To do this, the pre-test writing is compared with the new piece of writing produced each time after feedback. Since the above studies analyzed the efficacy of feedback only on the revised texts and not on new composition samples, the results of these studies cannot be considered reliable. To overcome this gap, another group of research focused on experimental research design by including pre-test post-test design into their study (i.e., Dizon, 2016; Ebadi and Rahimi, 2017; Ho et al., 2020; Pham et al., 2020). Recently, Dizon (2016) and Pham et al. (2020) examined the effects of e-feedback and traditional face-to-face feedback on writing quality among Japanese and Vietnamese university students, respectively. Google Docs and Facebook media were used in both studies, respectively. Sharing the same quasi-experimental research design, both studies found that the experimental group did better in terms of writing gains. In Ebadi and Rahimi's (2017) study, two intact classes in Iran were focused to know effect of e-feedback by using Google Docs and compared it to the traditional face-to-face group. The study found that both modes of peer comments significantly improved the students' academic writing skills. The e-feedback group was reported to exceed traditional feedback regarding the four areas of the IELTS writing task 1 and task 2 (i.e., task achievement, coherence and cohesion, lexicon, and grammatical range and accuracy) both in short and long term. Ho et al. (2020) used Facebook social network as the medium to provide e-feedback to 72 native Vietnamese and compared this group to that which was receiving face-to-face oral feedback. The findings showed that e-feedback group outperformed the traditional feedback group. Same findings were appeared in the study where computer mediated e-feedback was used to know its effect on the correct usage of past perfect tense. Since language production in asynchronous situation is not dependent on time constraints, neither it interfered with by factors prevalent in traditional face-to-face mode of providing feedback, as Hurd (2006) mentions, learners produce the language at the same time, discuss their understanding of the language, and revise their responses.

Despite of revealing positive effects of e-feedback, the above-mentioned studies have engaged peers as the main source of providing e-feedback. Research related to teacher e-feedback on L2 writing is quite scarce, despite the repeated acknowledgments the research has given to the significance of teacher feedback and increased use of e-feedback (Ene and Upton, 2014, 2018; Elola and Oskoz, 2016). Moreover, above research on e-feedback have mostly centered on blogs, Google Docs and currently more on social network sites, such as Facebook. However, Microsoft Word's Track Changes feature has received relatively little attention (Ebadi and Rahimi, 2017). Track Changes keeps the '*original ill-form produced by the learner*' and hence enables the writer to '*make a cognitive comparison and notice the difference between the error and the suggested correct form*' (AbuSeileek and Abualsha'r, 2014: 88). Track changes strikes through deletions and makes insertions in a different color. No direct explicit metalinguistic corrective feedback is provided in this type of feedback (AbuSeileek, 2013). It provides a target-like revision of errors and identifies their nature indirectly without overt mention of the error type.

Only a few existing studies (e.g., Ene and Upton, 2014, 2018; Elola and Oskoz, 2016) examine teachers' use of Word Track Changes on L2 writing, and even fewer look at teacher e-feedback on ESL writing. This is surprising, considering the centrality of the teacher as a main source of feedback in the L2 writing class (Schultz, 2000; Ware and O'Dowd, 2008; Ene and Upton, 2014; Elola and Oskoz, 2016). Elola and Oskoz (2016) compared MS Word comments with oral feedback in the form of screencasts as a mean of providing teacher's e-feedback on advanced Spanish narrative writing. Although the number of e-feedback comments offered in the two modalities was similar, Word comments focused more often and explicitly on form, while the screencast comments were lengthier and focused more on content, structure, and organization. The learners responded to all or most of the teacher's e-feedback on content and style regardless of the modality used (Word comments or screencasts) and corrected similar percentages of form-focused e-feedback for both. Ene and Upton (2014) is another study that focused on teacher e-feedback offered by teachers as Word comments on electronic drafts in university-level ESL composition courses. In their longitudinal study, Ene and Upton (2014) found that most of the teachers' Word comments focused on content and led to successful uptake and attempts to revise all aspects of writing (content, organization, grammar, and mechanics). Ene and Upton (2018) showed positive effects of teacher's e-feedback in the form of Track Changes and online text chats. Despite of the fact that these studies focused on the teacher's e-feedback, the effect of e-feedback was investigated on revised drafts rather than new pieces of writing. These studies were quite unable to compare teacher's e-feedback with traditional face-to-face teacher feedback to know which one should replace the other. Furthermore, the effect was investigated on unfocused rather than focused L2 linguistics forms.

Ware and Warschauer (2006) described three parameters of research related to e-feedback in second language writing pedagogy. Of these, the second aligns with the aim of this study, that is, a comparison between the effect of e-feedback and more traditional face-to-face feedback on ESL writing. Considering the above gaps, the present study aimed to investigate the effectiveness of e-feedback provided by teachers via MS Word

Track Changes and face-to-face oral feedback in university-level ESL writing courses overtime.

Theoretical framework

The evidence provided by empirical studies has focused on the role of feedback in second language acquisition. In Vygotsky's sociocultural theory (1978), feedback plays an essential role and is considered as a dialogic process between teacher and students (Lantolf, 2006). It has the main potential of making learners scaffold to a higher level, the step above the learners' current level of capability identified by their teacher. Nassaji and Swain (2000), for instance, found that their Korean learner was able to comprehend feedback better when the feedback was based on the zone of proximal development (ZPD). Oskoz (2009) also found that feedback provided in written online synchronous interactions helped learners to advance further only when it was within their ZPD. Hence sociocultural theory see feedback as an essential factor in teacher-learner interaction. In this study, face-to-face oral feedback was provided to ensure guidance to the learners through negotiation. This interaction or negotiation took place between an expert (teacher) and novices (students). The expert's task was to guide the novice learners to enter their ZPD, so they could make the transition from being in the interpsychological state and advance to the intrapsychological level, where internalization of new learning occurs, so helping students to become self-reliant learners by closing their linguistic gaps and moving to the next level (Lantolf and Thorne, 2007).

Sociocultural theory recommended that mental processes like planning and monitoring are mediated by psychological or semiotic tools or with physical tools and artifacts (Vygotsky, 1978). The relevancy of tools is discussed in activity theory which elaborates tools and artifacts to be "integral and inseparable components of human functioning" (Engestrom, 1999, p. 29). Tools can empower learners to achieve their desired outcomes, such as producing a new piece of writing (e.g., Oskoz and Elola, 2014), but they can also restrict learners' actions depending on the limitations of the tools in use (Kuutti, 1996). For example, when an instructor provided specific guidelines to be implemented and the tools to complete a writing task, Blin and Appel (2011) found that learners deviated from the expected procedures in applying the tools and developed their own set of actions to accomplish the writing task. Thus, in the case of a technology-aided feedback like in the present study, common tool and artifact, such as MS Word track changes (for written feedback), may impact the way how L2 learners foresee the object and incorporate feedback to improve their writing. Hence this study will explore the extent to which technological tool, i.e., MS Word track changes, influence the nature of the instructor' s written feedback.

Hypothesis

This investigation attempts to fill some research gaps, observed in previous studies. The hypothesis underpinning this study is that: learners receiving e-feedback more likely to perform better and make fewer errors of conjunctions and articles than those receiving traditional face-to-face oral feedback.

Methodology

Research design and participants

The study used pretest-post-test design (quasi-experimental) to determine the effect of teachers' e-feedback and face-to-face oral feedback on learners' performance in pre-and post-test writing tasks. A total of 66 undergraduates from COMSATS University Pakistan were recruited as participants, students of Physics (n = 18), Chemistry (n = 16), Maths (n = 17) and Statistics (n = 15). All of them were studying *Report Writing* as their English subject to study along with other science subjects. This module allows them to practice different writings like, proposal writing, letter writing, essay writing and project writing components. Students have been given instruction related to different grammatical features, however, they had not practiced these features while writing different texts. Ethical approval for this study was taken from the university administrators. During the project, students' participation was completely voluntarily, and they received no remuneration. It had been made clear that the students could withdraw from the study at any stage with no consequences, that pseudonyms would be used to ensure confidentiality and anonymity, and that the data would not be shared with anyone including the university administrators.

The learners were assigned to one of three feedback groups, to ensure each group contained an adequate representation of students from the different science disciplines. The same language teacher taught all three groups. She had a Master of Arts degree in English and 6 years teaching experience. The participants were aged between 18 and 22 (*Mean* [M] = 20.18, *Standard Deviation* [SD] = 1.21), with 47% male and 53% female. All participants used English as their second language and none used English as their first language. Science students were selected as their focus is on language content more than form when writing in English.

The teaching material was the same in all classes. The students were randomly assigned to one of the three treatment groups (one control and two experimental), each having 22 students. MANOVA (Multivariate Analysis of Variance) was used to analyze the pre-test scores, which showed no significant difference between the written e-feedback group (n = 22;

M = 20.18; SD = 1.76), face-to-face oral feedback group (n = 22; M = 23.17; SD = 1.67) and the control group (n = 22; M = 21.93; SD = 1.73); F (1, 59) = 1.03, p = 0.38. Therefore, all three groups had similar levels of writing ability.

Teacher feedback

In this study, teacher feedback mainly involved written e-feedback using MS Word Track Changes (Group 1) and face-to-face oral feedback (Group 2). Following Bitchener et al. (2005), oral feedback, as a 20-min short lesson, was provided, mainly a discussion and explanation of the grammatical rules holistically along with examples, actually taken from students' texts as erroneous grammatical forms, on whiteboard. Two problematic linguistic features were focused to provide feedback, because students produced more number of errors concerning these two forms at the pre-test writing. E-feedback was provided using MS Word 2010 Track Changes feature, which from the Review menu, allows striking through deletions and inserts changes marked in red (see **Figure 1**). The control group was given no feedback of any kind by the instructor. Each student was supposed to work alone on the writing tasks. However, students in this group received feedback once the study was finished because it was a long time for them not to receive feedback.

Instrument

During the semester, students produced three narrative essays as pre-test, immediate and delayed post-test writing. Three picture prompts selected from Mark et al. (1983), were used to prompt three sets of narrative writings from students at pre and post-tests on three occasions/times. Two raters, ESL instructors, who were applied linguists, validated the test with regard to the clarity of instructions and its suitability to the goals of the study.

These three picture prompts comprised a sequence of pictures narrating a story. The learners were asked to describe the story in the pictures by using a minimum of 200–250 words in 22 min. The pre-test writing was used to analyze their writing errors, so that the most common errors could be focused for the teacher to give feedback on later. The analysis measured the students' written accuracy in English, and their ability to produce, organize and develop ideas and support these ideas with examples. They had 20 min to write under controlled time pressure in order to use their implicit knowledge of the focused linguistic forms (Ellis, 2005). Two recurrent errors in the pre-test writing were: articles (e.g., *the* and *a*, '*There was* ***a*** *boy in a park.* ***The*** *boy went near a tree.*') and conjunctions (e.g., '*Richard* ***and*** *Rocky went to cinema. Richard is intelligent* ***but*** *Rocky is not.*. . ..').

Procedure

Students were informed about the aim of the study and were provided all the information, time frame, procedures and steps involved in participating of the study before administering the pre-test to ensure they could attend classes over the period of the study. The e-feedback group was informed about the procedure for e-feedback to track, accept or reject changes. Likewise, students in the face-to-face oral feedback group were guided about revising and editing their writing.

In the first week, learners were randomly assigned into one of the three instructional modalities, resulting in 22 students in a group involve in face to face student-teacher interaction inside the classroom, 22 received e-feedback in the form of Track Changes, and 22 students who did not receive any feedback. Each student in all the three feedback conditions (Track Changes, face-to-face oral feedback, no feedback) needed to produce a composition (as pre-test writing) using MS Word and send their draft by email to their teacher. Due to the absence of some students, the instructor was forced to postpone two lessons (one for the track changes group and the other for the control group) in order to enable all students in different groups to participate in the discussions.

In the second week, the students' writing was photocopied; one set was marked by the researcher, and the other by an applied linguist for a reliability check. The same teacher and researcher checked and marked all the students' pre and post-tests writing to maintain consistency. By the end of the second week of the experiment, the marking of all students' written errors was complete. After counting the number of errors within various categories, those that occurred most frequently were considered as the core target of the study.

In the third week, the students' pre-test compositions were returned. For Group 1, the teacher provided feedback using the Track Changes feature of MS Word which the students then used to follow teacher's feedback. The feature allows striking through wrong forms or crossing deletions and coloring insertions. The spell-checking aspect of the software was made inactive, so no auto-correction of the compositions could be made. Before providing face-to-face oral feedback to Group 2, the teacher made written notes of the students' written errors, for discussion during detailed oral feedback to students in class. The written texts of students in Group 3 were returned to them without any feedback at all (neither marked nor any correction given) and they were asked to revise their text by themselves.

In the fourth week, the learners had to write another story with a new topic (as immediate post-test writing) with a second picture prompt set and they sent their final draft to their teacher by email. In the fifth week, they received Track Changes feature. Group 2 received face-to-face oral feedback after they had provided their second sample of writing. To assess the long-term effectiveness of either feedback, a delayed post-test was conducted by following the third picture prompt six weeks later

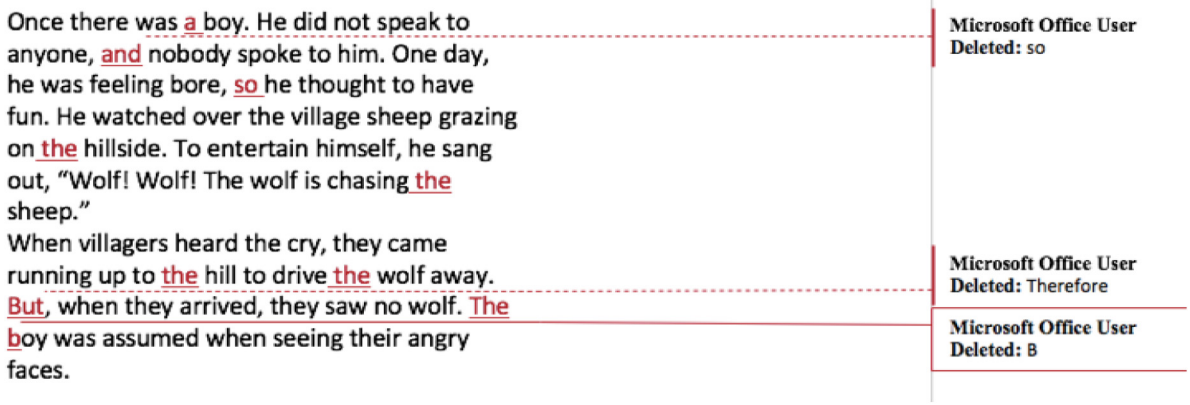

FIGURE 1
Learners' corrections using the MS Word Track Changes feature.

(in the 11th week). The third writing sample with asynchronous track changes e-feedback was returned to Group 1 and face-to-face feedback given orally to Group 2 the next week for self-correction. To reduce students' anxiety about making mistakes and errors, they were instructed not to write their names on the drafts; numbers were used instead.

Data analysis

The mean and standard deviations of the use of the two focused linguistic forms on three occasions (i.e., pre, immediate and delayed post-tests) were calculated for each group (Group 1, 2 and 3). The performance of students was measured in terms of their error ratio at the pre, immediate and delayed post-tests. Due to variations in the use of words in each composition, the error rates were measured as the frequency of errors/overall frequency of words x 100.

To discover the impact of different instructors' feedback (i.e., track changes, face-to-face oral feedback and no feedback) in second language writing, an ANOVA and a *post hoc* (Tukey) pair-wise comparison was applied to all the students' written work to identify any differences in the performance of various feedback groups. The feedback types and time occasions were taken as independent variables, whereas students' mean scores on the immediate and delayed post-tests were regarded as dependent variables.

SPSS software was employed for this purpose. A reliability level of 0.86 was obtained from identifying errors in the first sample of writing (pre-test), and 25% of the post-test writings were checked by a second assessor. The two focused errors with correlation coefficients (r) of 0.83 and 0.84 for conjunctions and articles were found when counting the errors in the post-test compositions. Meanwhile, correlation coefficient values of 0.89 and 0.93 were obtained from marking the errors in the second and third samples of writing, respectively.

Results

Table 1 summarizes the descriptive statistics for the two focused forms. Figure 2 demonstrates the mean values of the three feedback types for each of the two focused grammatical forms on three occasions. Figure 2 also reveals that the participants in Group 1, who received written e-feedback through the Track Changes feature of MS Word, and Group 2, who received face-to-face oral feedback, performed better than the control group who was not provided with error correction. The mean values of errors showed distinctive variations for each groups F (3, 51) = 8.57, p = 0.001.

The pairwise comparisons (Tukey) also demonstrate that variations appeared between the no-feedback group (Group 3) and the e-feedback group (Group 1) (p = 0.013) and between the no-feedback group (Group 3) and the oral feedback group (Group 2) (p = 0.042). Furthermore, *post hoc* comparisons found distinctive variations between the no-feedback (Group 3) and the e-feedback group (Group 1) (p = 0.007), but not between the no-feedback and the oral feedback group (Group 2) (p = 0.079) in the second sample of writing. In the third sample of writing, produced five weeks after the feedback treatment, the no-feedback group varied distinctly from the e-feedback group (p = 0.009) and the oral feedback group (p = 0.032).

Figure 3 illustrates that the mean values of conjunctions errors decreased in the second piece of writing after e-feedback and oral feedback had been given to Group 1 and 2. The no-feedback group made more errors in the second and third pieces of writing than in the pre-test writing. A one-way ANOVA showed differences in the mean values of conjunctions errors

in the three groups [F = (3, 62) 4.26, p = 0.016]. The pairwise comparisons in Tables 2, 4 revealed that the no-feedback group's written production significantly differed from the e-feedback receiving group (p = 0.044) with an effect size of 0.6 and the oral feedback group (p = 0.035) with an effect size of 0.61 in the second sample of writing. That is, despite having significant difference, the effect size is of average strength. Similarly, significant differences were found between Groups 3 (no feedback) and 1 (e-feedback) (p = 0.028) with an effect size of 0.64 and between Groups 3 and 2 (oral feedback) (p = 0.005) with an effect size of 0.82 in the third sample of writing. That is, the difference between the control group and oral feedback has a strong magnitude as compared to the difference between control group and e-feedback group. Of the two treatment groups,

TABLE 1 Descriptive statistics: three feedback types at pre-and post-tests.

Group	Pre-test writing		Immediate post-test		Delayed post-test	
	M	*SD*	*M*	*SD*	*M*	*SD*
Written e-feedback	3.93	1.49	3.51	1.39	3.22	0.924
Face-to-face oral feedback	3.95	1.50	3.77	1.51	3.03	1.13
No feedback	3.91	1.75	4.40	1.55	3.88	1.14

TABLE 2 Inferential statistics: three feedback types at pre- and post-tests.

Linguistic features	Testing times	Groups	t	P	D (Effect size)
Conjunction	Pre-test	Group 1 Group 2	−0.157	0.88	0.044
		Group 1 Group 3	−0.048	0.96	0.014
		Group 2 Group 3	0.097	0.92	0.027
	Immediate post-test	Group1 Group 2	−0.219	0.83	0.061
		Group 1 Group 3	2.063	0.044*	0.60
		Group 2 Group 3	2.17	0.035	0.61
	Delayed post-test	Group 1 Group 2	−0.93	0.045	0.26
		Group 1 Group 3	2.27	0.028*	0.64
		Group 2 Group 3	2.91	0.005*	0.82
Article	Pre-test	Group 1 Group 2	0.217	0.83	0.06
		Group 1 Group 3	−0.04	0.97	0.01
		Group 2 Group 3	−0.23	0.81	0.07
	Immediate post-test	Group 1 Group 2	0.27	0.79	0.08
		Group 1 Group 3	2.180	0.034*	0.62
		Group 2 Group 3	1.86	0.05*	0.53
	Delayed post-test	Group 1 Group 2	−0.498	0.62	0.14
		Group 1 Group 3	2.24	0.03*	0.63
		Group 2 Group 3	2.50	0.015*	0.69

*$P < 0.05$.

TABLE 3 Descriptive statistics of article errors at pre and post-tests.

Feedback types	Pre-test		Immediate post-test		Delayed post-test	
	M	*SD*	*M*	*SD*	*M*	*SD*
Written e-feedback	1.99	0.80	1.90	0.77	1.65	0.51
Face-to-face oral feedback	2.04	0.83	1.96	0.82	1.57	0.62
No feedback	1.98	0.95	2.40	0.85	2.01	0.65

TABLE 4 Descriptive statistics of conjunction errors at pre and post-tests.

Feedback types	Pre-test		Immediate post-test		Delayed post-test	
	M	*SD*	*M*	*SD*	*M*	*SD*
Written e-feedback	1.93	0.68	1.60	0.61	1.57	0.41
Face-to-face oral feedback	1.90	0.67	1.56	0.68	1.45	0.50
No feedback	1.92	0.79	1.98	0.69	1.87	0.52

Group 1 performed better than Group 2 ($p = 0.045$) only in the third written task (delayed).

Students mostly produced conjunction errors at pre-test where they make the wrong use of *and* and *because*. Following examples are taken from students' texts in this regard:

> *The man did not come to the park and he was not feeling good.*
> *She used to eat at home and she likes cooking.*
> *The boy feels hungry because the shop was closed.*

At immediate and delayed post-test, they started using the correct forms of conjunctions but at some places they often omit some of the conjunctions like, *Although* and *or*.

> *The boy speaks very less, he says meaningful words.*
> *He has to decide if he wants to stay there, walk away from there.*

Figure 4 indicates that the mean values of article errors in Groups 1 and 2 became relatively fewer in the immediate post-test. The no-feedback group made more article errors in the immediate and delayed post-tests than in the pre-test. A one-way ANOVA revealed significant differences in the mean number of article errors for all three groups [$F = (3, 62)$ 4.26, $p = 0.016$]. The pairwise comparisons in **Tables 2**, **3** revealed that Group 3 had significant differences compared with Group 1 ($p = 0.034$) with an effect size of 0.62 and Group 2 ($p = 0.05$) with an effect size of 0.53 in the immediate post-test. Likewise, in the delayed post-test, significant differences were found between Groups 3 and 1 ($p = 0.03$) with an effect size of 0.63 and between Groups 3 and 2 ($p = 0.015$) with an effect size of 0.69. That is, the control group is significantly different from group 1 and 2 and this difference has an average strength. Of the two intervention groups, no significant differences were found between Groups 1 and 2 in the immediate ($p = 0.79$) and delayed post-tests ($p = 0.62$).

Students produced more errors of articles where they mostly omit the use of definite article. Following are the examples taken from the text:

> *A lady was sitting in the park besides that big tree. Lady was very confused as she was waiting for her sister for the last 2 h.*
> *She saw a boy coming out of the bushes. Boy has a green hat.*

Discussion

The study investigated the efficacy of written e-feedback type (Track Changes) and face-to-face oral feedback on learners' performance overtime relating to the two most problematic error types (i.e., conjunctions and articles). The findings unfold that the students who were exposed to e-feedback (MS Word Track Changes) performed better on the delayed post-test than those given oral face-to-face feedback. These findings can help teachers support the target population in Pakistan where instructors were mostly employing traditional approaches of providing feedback (Haider, 2012) and were not given enough opportunities to the instructors for integrating technology in education to expose learners to the technology-enhanced e-feedback due to limited facilities and infrastructure available related to ICT (Information and Communication Technology) (Khan et al., 2018).

It has previously been discussed that tools, both enabling or limiting, can be used by learners or instructors to manipulate and mediate a product (Kuutti, 1996; Engestrom, 1999). The

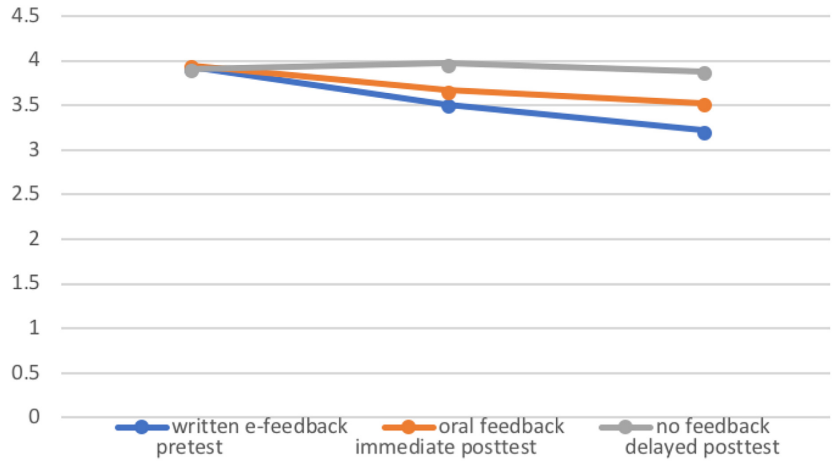

FIGURE 2
Graphical representation of total number of errors overtime.

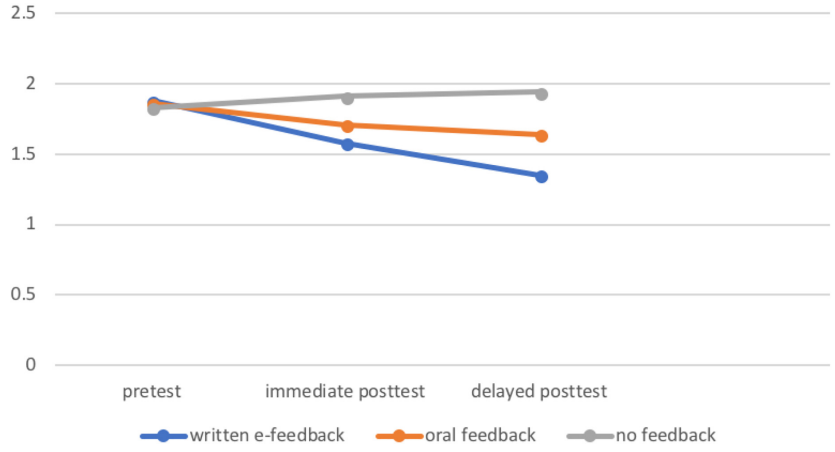

FIGURE 3
Graphical representation of number of conjunction errors overtime.

findings of this study advocates activity theory. Learners showed improvement in their third sample of writing (delayed post-test) due to e-feedback which may recommend that the tool used in the form of MS Word Track Changes have a positive impact on their writing (Oskoz and Elola, 2014). The findings suggest that the written e-feedback provided by the instructor was not manipulated by the limitations set by the medium. When the instructor used oral face to face feedback, although she identified the type of error, she was less explicit about where to find it as she was discussing all the errors of students without mentioning the location of error or who has produced those errors. She did, however, suggest strategies that helped learners fix their own errors. When the instructor used Word, on the other hand, although she did not explicitly correct errors, using the coding system, she indicated both the type and location of the error. Therefore, degrees of feedback explicitness were also clearly related to the mode and the medium used (Ducate and Arnold, 2012). These findings advocated Oskoz (2009) results who found that the feedback provided by the instructor in written online synchronous form helped fellow learners especially in case when it was within their ZPD. Nassaji and Swain's (2000) findings also advocate the findings of the current study when their Korean learner was able to comprehend feedback better when the feedback was based on the zone of proximal development (ZPD).

Empirically, these findings support the work of Tuzi (2004), Dizon (2016), Ebadi and Rahimi (2017), Ho et al. (2020), Pham et al. (2020) who found positive effects of e-feedback after comparing it with traditional oral feedback. However, these researchers have used e-feedback tool, other than MS Word. That is, it's not just specific electronic tools, like Google Docs, Facebook, online chats, which are used to provide e-feedback

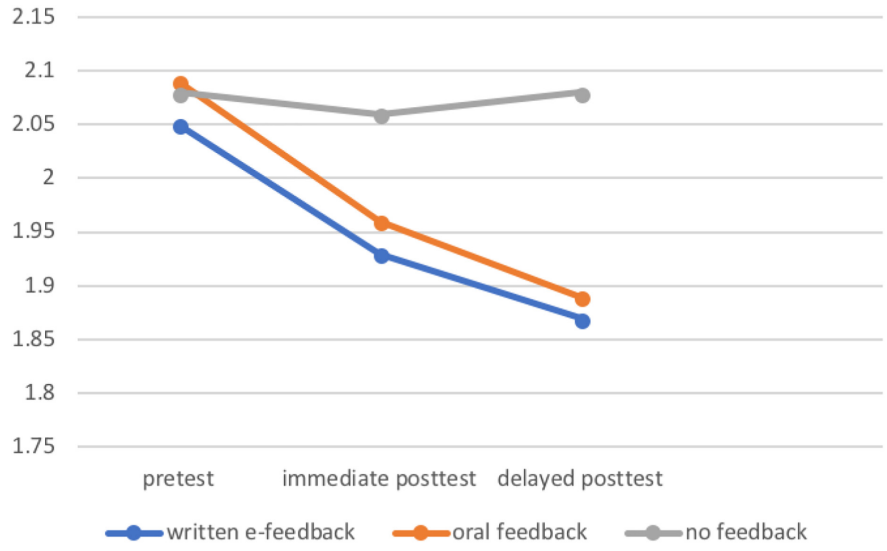

FIGURE 4
Graphical representation of number of article errors overtime.

and showed positive effect on learners' writing, rather MS Word Track Changes features equally help in improving learners' writing. The findings of this study also advocate the studies by Elola and Oskoz (2016) and Ene and Upton (2018) who used teacher's e-feedback by using MS Word Track Changes feature. However, these studies showed results on revised drafts rather than on new pieces of writing, produced after receiving feedback from the teacher. This finding showed that Track Changes feature equally showed positive effect (in terms of improving learners' writing accuracy) on revised drafts and on new pieces of writing. One reason of showing better performance through e-feedback might be because of the user-friendly facilities available in computers. According to AbuSeileek (2013), the Track Changes feature is considered an advance technological facility where users strike through deletions and put insertions in a different color, enabling them to determine errors and suggested reformulations of the correct forms simultaneously. Thus, the Track Changes option allows learners to benefit from a combination of explicit and implicit feedback, although the feedback is less direct in the form of implicit reformulation when students are only informed about the nature of their mistake. Explicit reformulation is also involved when the incorrect forms are crossed.

Whilst using MS Word, the instructors in this study did not provide metalinguistic explanations, only indicated the types and locations of errors. However, the tool used in the form of MS Word created such an environment where the learners had enough time to notice and observe at any time the mismatches between their production and the feedback provided. In the oral feedback, although the instructor provided lengthy feedback of 20 min where she explained and discussed different grammatical errors related to the two targeted forms, she was less explicit about where they occurred in the students' compositions. Nevertheless, she suggested different strategies that could help students make fewer errors. Moreover, being synchronic, students could not return to the oral conversation with the instructor when they revised their texts after their instructor's oral feedback. Hence, the oral and written feedback provided by the instructor were manipulated by the limitations set by the medium used (Engestrom, 1999). In addition, this degree of feedback explicitness was evidently related to the mode and medium being used in the study (Ducate and Arnold, 2012).

Moreover, the above studies focused on several L2 linguistic forms to determine the effect of asynchronous and synchronous feedback. The current research thus demonstrates the significance of targeted feedback, in line with other studies that show the efficacy of targeted e-feedback in responding to learners' needs (Shintani and Aubrey, 2016). The research also focuses on two forms, namely, conjunctions and articles, to lower the cognitive load of the students receiving and incorporating the feedback cognitively. The results indicate that only conjunctions showed a long-term effect of asynchronous e-feedback, whereas asynchronous e-feedback and synchronous feedback acted similarly in improving the accuracy levels of article use. That is, regardless of the medium of providing feedback, the learners' accuracy levels (improvement) were roughly the same. The reason may be that in learners' L1, articles are not used, which makes it difficult for them to improve overtime. Teacher oral feedback was given for 20 min during which the teacher provided examples and explanations of the students' errors. However, students participate little in terms of asking questions and did not take advantage of the

opportunity offered. The teacher dominated the oral feedback, so little students' interaction ultimately reduces the effect of this type of feedback no matter how much time is given to provide it.

Conclusion and limitation

In this study, feedback was found significant for improving the written accuracy of two linguistic forms. Conjunctions showed a significant improvement overtime after e-feedback through MS Word Track Changes. In the case of articles, asynchronous and synchronous feedback had similar effect and showed no significant difference overtime.

Acknowledging the limitations of the study is important. Firstly, it only investigated two grammatical features, namely, conjunctions and articles. Focusing on different grammatical features may lead to different results. In addition, correcting multiple features in one piece of writing may lead to different levels of attention from learners (Shintani et al., 2014). Investigating different ways of providing synchronous and asynchronous feedback and determining their effect on different types of grammatical features would also be interesting. For example, asynchronous e-feedback can be compared with other types of synchronous oral feedback (recasts and repetitions). Secondly, the study measured the efficacy of feedback on accuracy over a period of three months. Future researchers can extend the duration and conduct additional post-tests to explore the long-term impact of feedback. This may help the development of written performance to be estimated. Lastly, the research only focused on synchronous and asynchronous feedback without knowing the students' perceptions for one or other of these types of feedback. Future researchers can focus on this to determine if any discrepancy exists between the perceptions and practices of learners.

The findings of this study have filled the research gap identified in the literature where most of the research contribute toward peer's e-feedback and rarely been compared to traditional teacher's feedback to know the extent of benefits learners can obtain from this feedback types. This finding thus allow instructors to play an important role in providing technology-aided feedback in the Pakistani context where it might be difficult to deal with large number of students (Khan and Iqbal, 2012).

The findings of the study present a few pedagogical implications for L2 writing teachers. E-feedback, especially using MS Word Track Changes could be a useful tool for improving L2 grammatical features, matched with factors affecting L2 learners (e.g., L1, their level of L2). Teachers can apply e-feedback in ESL academic writing classes to motivate their students to participate in writing activities, practice the use of different L2 linguistics forms and improve their writing quality. Hence, it may allow ESL educators and instructors to acknowledge the applications of Track Changes and how this tool can facilitate ESL learners' academic writing skills since they are not yet known its potential for developing their academic writing skills.

Data availability statement

The original contributions presented in this study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent was obtained from the individual(s), and minor(s)' legal guardian/next of kin, for the publication of any potentially identifiable images or data included in this article.

Author contributions

AN did main work and wrote the manuscript. SK, FK, and RF worked on formatting, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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