The Effects of Multimodal Online Feedback Delivery on the Writing Skills of EFL Learners

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Abstract

This study investigated the role of asynchronous multimodal feedback, including text, audio, and screencasts, in EFL writing using a sequential explanatory mixed-methods design. In addition, participants' perceptions and preferences regarding the feedback categories were investigated. In a counter-balanced design, 60 university students studying EFL at the intermediate level were divided into three groups, each receiving a different type of feedback. Using one-way between-groups ANOVA and post-hoc tests, the efficacy of multimodal feedback on the writing development of groups was investigated. While the results of the one-way ANOVA indicated that feedback enhanced the writing performance of EFL students in all three classes, the post hoc multiple comparison tests revealed that students who received screencasting feedback performed better than those who received audio or text feedback. The qualitative data were analyzed using thematic analysis, which revealed the students' favorable perceptions of multimodal feedback and their preference for screencasting feedback over text and auditory feedback. The findings suggest that alternative methods for creating and delivering feedback categories should be integrated into online EFL writing courses to consider students' preferences for receiving feedback.

Keywords: feedback, multimodal feedback, text feedback, Audio feedback, Screencasting feedback, EFL writing

Introduction

Writing as a productive skill in a second language is considered one of the cognitively demanding L2 skills that focuses on both content and language simultaneously (Lee, 2019). From a theoretical perspective, Hyland (2003) believes that feedback as an effective pedagogical practice in writing needs to be interactive. There has been a growing recommendation to utilize technology to enhance feedback engagement and use (Carless & Winstone, 2023; Wood, 2021). According to Wood (2023), technology-mediated dialogues can enhance learners' capacity to pursue feedback actively, request additional information, and question or challenge feedback to attain a more comprehensive understanding. Previous studies highlighted that the perception of students regarding providing and receiving feedback in a digital environment is generally favourable. Certain individuals may prefer it over face-to-face interactions (Cuocci et al., 2023). Furthermore, according to Guasch et al., (2019), implementing a discussion forum where instructors provide electronic feedback on collaborative written tasks may encourage students to engage in dialogues and exchange ideas concerning the feedback. Electronic feedback has also been found to improve writing abilities in various ways, including vocabulary and grammar development, organization, coherence, and punctuation. Recent studies in the EFL context indicated that corrective feedback is one of the most important resources for promoting English language learning, developing writing skills, and teaching by providing students with the necessary information to correct their errors (AbuSeileek & Abualsha'r, 2014; Ghufron, 2019; Lee, 2015; Mohammed, 2021; Tian & Li, 2019). Previous studies (Ghufron, 2019; Lee, 2015; Tian & Li, 2019) highlighted students' positive perceptions and preferences for receiving corrective feedback, especially content, organization, and writing mechanics. Students also reported the effectiveness of corrective feedback in raising their awareness to develop writing skills and long-term autonomous writing skills (Bush, 2020; Kuyyogsuy, 2019) in their subsequent assignments (Sarre et al., 2019).

Bakla (2017) points out that researchers have debated the most effective and time-efficient feedback methods for decades. More technological alternatives to traditional feedback are available today. Technology provides different feedback modalities (e.g., text, audio, and screencasting/video) on students' writing. As technology-mediated feedback becomes more popular, it's crucial to consider how different modalities can affect the feedback students receive (Cunningham & Link, 2021). The mode of delivery is recognized as one of the crucial factors in the feedback process because of the heterogeneity of students, diversity in their learning styles, and preferences for receiving feedback. Recent studies have examined the effects of alternative ways of delivering feedback, such as exploring the impact of audio versus text feedback (e.g., Portolese & Trumpy, 2014) and screencasting versus written feedback (e.g., Anson, 2015; Bush, 2020; Denton 2014; Elola & Oskoz 2016; West & Turner 2015).

Most previous studies have only compared two types of feedback (i.e., text versus audio or screencasting feedback). Although Orlando (2016) has compared all three forms of feedback, including text, voice, and screencasting, it is not conducted in the EFL/ESL context. Furthermore, this study did not attempt to explore the effects of these feedback forms on students' writing performance. Several studies (Anson, 2015; Fawcett & Oldfield, 2015) have just examined the impact of corrective feedback on students' single writing performance and did not examine such impact on their subsequent assignments to find out about feedback's long-term effects. Such a one-shot examination does not provide enough information to determine whether the feedback has been effective in helping students improve their performance. Thus, this study is intended to investigate the effects of text–audio –and screencasting feedback types on students' writing performance in their subsequent assignments in an online context. Moreover, the challenges of receiving different feedback types from students' perspectives have not been

thoroughly investigated. As digital technologies have become ubiquitous and most students' assignments are submitted online, teachers should respond and provide feedback appropriately (Pachuashvili, 2021). Thus, the online context was chosen to deliver multimodal feedback in this study. Given students' diverse preferences and personality traits in receiving feedback, this study has also explored students' preferences and perceptions of multimodal feedback delivery in an EFL context. The following questions guided this study:

RQ1. Is there any significant difference between the feedback types (text/ written, audio, and screencasting) in EFL learners' writing development?
RQ2. What are EFL learners' perceptions and preferences of multimodal (text/ written audio, screencasting) feedback?

Literature Review

Theoretical framework

From a theoretical perspective, several theoretical frameworks have supported feedback in SLA and considered how it could promote learning. Following Barrot (2021) and Saricaoglu (2018), this study is framed within the interaction hypothesis (IH). According to IH (Long, 1983), active participation in social interactions is essential for language acquisition. In this regard, feedback is critical in facilitating the learning process. Interaction contributes to L2 learning by supplying and giving students linguistic input and form. It also offers feedback on their language and creates chances for output and interactional changes (Long, 1996). Chapelle (2003) broadened the concept of interaction to "the activity between human and computer" (p. 56) to account for the connection between people and computers, which may also contribute to language development (Chapelle, 1998). She suggests that feedback can raise learners' awareness of linguistic forms to correct their errors. It finally improves learning in instructional contexts (Robinson et al., 2012).

In addition to the interactionist framework, this study also focused on the interpersonal aspect of feedback as a theoretical rationale underlying the affordances of screencasting feedback. According to Cunningham and Link (2021), feedback types that impact interpersonal student-instructor relationships may differ across technology mediums. They believe that when giving feedback on writing via screencasting rather than MS Word comments, teachers may be more attuned to the interpersonal aspects of feedback. Anson et al., (2016) state that screencasting feedback has a conversational tone that students perceive as more friendly and less arrogant than written feedback, which enhances interpersonal connections between students and teachers. Overall, these theoretical perspectives view multimodal feedback as crucial to language learning.

Multimodal feedback types

The typical way of providing feedback on students' assignments in online and face-to-face classes is in written form (Silva, 2012; Wolsey, 2008). While some studies reported students' preference to receive written corrective feedback (Kılıçkaya, 2019; Weaver, 2006), several others highlighted students' dissatisfaction with this type of feedback due to its vague, confusing (Norton, L. S., & Norton, 2001) and impersonal nature (Anson, 2015; Duncan, 2007). Morris and Chikwa (2016) suggest that it is essential for academics to consider alternative feedback, which justifies using technology-based multimodal feedback forms such as audio and screencasting feedback in this study.

Previous studies have highlighted the preference of learners for audio feedback over written feedback as a more effective form of evaluation (Ducate & Arnold, 2012). Notably, students perceive audio feedback as more informative, intimate, easier to understand, and constructive than written feedback (Merry & Orsmond, 2008; Rodway-Dyer et al., 2011). Roy (2019) highlighted the motivational aspect of audio commentary, emphasizing its role in fostering stronger instructor-student connections compared to written feedback. Chen (2022) explored the impact of digital visual and audio feedback on Chinese language learners' lexical tone production. The study revealed significant progress among participants using Praat software-generated feedback compared to a control group receiving feedback from the researcher. Conversely, Mohammed (2021) identified challenges related to audio feedback, citing issues with its ambiguous nature, poor quality, and length of recorded feedback as limitations.

Studies conducted in the ESL/EFL context indicated that screencasting feedback positively influenced learners' motivation (Alvira, 2016; Ducate & Arnold, 2012). It also increased the quality of EFL students' uptake, autonomy, and independence and helped them to improve their writing performance (Alvira, 2016). Some studies explored EFL writers' perception of the effectiveness of screencast video feedback (Elola & Oskoz, 2016; Mohammed, 2021; Vincelette, 2013). Pachuashvili (2021) points out that students' positive perception originates from the desire for multi-sensory feedback. Students prefer multimodal feedback and perceive them as more valid and accurate than written comments. Turner and West (2013) reported that students viewed video feedback as more valuable, easier to understand, personal, vivid, conversational, and positive than written feedback (Henderson & Phillips, 2015). They also indicated that video feedback was specific, supportive, detailed, and constructive. Students were more involved in revising and improving their assignments when comments were more understandable (Orlando, 2016; West & Turner, 2015). Silva (2012) outlines various drawbacks linked with video feedback, citing issues such as poor audio quality within video files and occasional discrepancies between audio and visual components, leading to difficulties in comprehension. Additionally, Bakla (2020) highlights the emotional impact on students when receiving video comments, noting that visual critical remarks might evoke more distress than written feedback. However, it's important to acknowledge that video feedback might not be universally beneficial. Ali (2016) indicated that the diversity of students' learning styles may render audio-visual feedback less effective for certain individuals. Moreover, logistical challenges in providing video feedback also exist, as highlighted by Ali (2016).

Multimodal feedback in EFL writing

Given that each of the above feedback categories has advantages and disadvantages, a combined feedback approach is believed to be an effective pedagogical strategy for fostering EFL writing proficiency in students (Bakla, 2020). Multimodal feedback, particularly in language learning, combines technology-mediated multimodal feedback, such as video, pictures, audio, or texts, provided during the learning process (Thomas, 2019). Multimodal feedback stimulates engagement and tailored learning through a more dynamic and formative language learning environment (Kulprasit, 2022; Thomas, 2019). Theoretically, this contributes to higher engagement inside learners' zone of proximal development and offers them scaffolding through interaction using multimodal feedback. Unlike single-mode feedback, multimodal feedback is grounded in the premise that it may cater to students' preferences in addition to learning styles (Mayer, 2003).

Balka (2020) examined three online feedback modes in an EFL context. Thirty-three intermediate Turkish-L1 English language learners received text, audio, and screencast feedback

in Google Drive to help them write better. The findings showed that, while there was no statistically significant difference between the three feedback modes in the essay-revision assignment, the audio group made the highest number of correct revisions in the essay-writing task. Orlando (2016) compared student and faculty attitudes toward text, voice, and screencasting feedback. He provided insights into the pros and cons of different feedback types. The findings revealed an interesting divergence in student preferences between screencasting and text, which might be related to variables such as students' age and whether they were traditional or returning to school. According to Kulprasit (2022), because students in EFL writing contexts have limited language proficiency, particularly their L2 proficiency, dealing with such overwhelming multimodal feedback at first becomes a real challenge rather than a learning tool.

The shortcomings of each feedback type mentioned above paved the way for introducing multimodal feedback experiences that allow educators to use sound, image, text, and animation to expand their teaching and learning spaces and increase the potential for students' dialogic learning experiences (Hung, 2016). Additionally, the long-term consequences of different types of corrective feedback have not been investigated in the above studies. They did not focus on the effects of corrective feedback on students' writing in time intervals. Moreover, most studies reported above failed to examine the impact of all three feedback types in a single study, highlighting the shortcomings of the previous studies on three types of feedback. As a result, this study investigates the effectiveness of online multimodal feedback types through different revisions of EFL learners' writings.

Methodology

Research Design

This study utilized a sequential explanatory mixed-methods design (Creswell et al., 2003) to address the research questions. The results related to the role of multimodal feedback, including text, audio, and screencasting in EFL writing, were analyzed quantitatively based on the students' final scores regarding their L2 writing performance. Meanwhile, participants' perceptions and preferences toward the feedback types were analyzed qualitatively using thematic analysis to substantiate and clarify the quantitative findings. Because of the institute's limitations, the participants were selected from intact classes. Quasi-experimental designs are used in cases where pre-existing intact classrooms are used as the experimental and control groups (Ary et al., 2019). The study's distinctive feature, in which all groups received all experimental treatments in a different order to investigate the first research question, necessitated using a counter-balanced design (Ary et al., 2019) to compare the efficacy of different teaching methods of learning. Counter-balanced design groups are shifted at intervals during the experimentation. For example, groups 1 and 2 may receive methods A and B for the first half of the experiment before switching methods for the remainder of the investigation. Ary et al., indicate that counter-balancing also has the advantage of rotating out any differences between the groups. Since groups are exposed to all the treatments, the results obtained for each group cannot be associated with pre-existing differences in the subjects.

The study's counter-balanced design is presented in Table 1. Group 1 (G1) received text-only feedback on their 1st & 2nd assignments, Group 2 (G2) received audio-only feedback on their 1st & 2nd assignments, and Group 3 (G3) received screencasting feedback on their 1st & 2nd assignments. The order of delivering feedback to the groups is represented in Table 1.

Table 1

A counter-balanced design of groups of students, assignments, and feedback type

	Group 1*	Group 2	Group 3
Assignments 1,2	T	A	SC
Assignments 3,4	A	SC	T
Assignments 5,6	SC	T	A

*'Group' in this design is not the same as the feedback type but indicates a set of students who receive feedback. (T= text; A= audio; SC= screencast)

Participants

The participants in this study were 60 students (22 males and 38 females) selected through convenience sampling from among EFL university students enrolled in English Language courses at a state university in Iran. Due to the institute's constraints, the students were chosen from three intact classes of twenty. The proficiency level of the participants was determined by the standards of the language center and the results of DIALANG, a free online assessment platform designed to assess language proficiency levels based on the Common European Framework of Reference for Languages (CEFR) in fourteen European languages. Students' proficiency levels ranged from B1 to B2 (intermediate levels). The participants were divided into three groups of twenty, numbered 1, 2, and 3, with each group receiving a feedback type (written/text, audio, or screencasting). Due to ethical considerations, participants were given pseudonyms to protect their identity and privacy during the research procedure. Furthermore, they were also informed that the information they provided would be kept strictly confidential and used solely for research purposes.

Instruments

Students' perspectives regarding provided feedback and their perceptions of multimodal feedback were explored using a semi-structured interview with items adapted from previous studies (e.g., Denton, 2014; Morris & Chikwa, 2016; Orlando, 2016). The items were modified to suit this study's needs, purpose, and context. The ten open-ended interview questions explored the most effective, helpful, and preferred feedback types from students' perspectives. The interviews were conducted in Persian to avoid misunderstandings (see Appendix A). We conducted semi-structured interviews with 20 students using convenience sampling based on their availability. The interviews lasted about 15 minutes and were held separately in the online context in the 14th week of the course. They provided the opportunity to understand the students' perspectives on multimodal feedback delivery.

Four devices, including Track Changes in Microsoft Word, Windows voice recording, built-in Samsung mobile phone voice recorder, and Tiny Take software (for Windows & Mac), were used to provide text, audio, and screencasting feedback. Screencasting feedback was captured using MangoApps' screen capture and video recording software. It records photos and videos from a computer screen and allows users to add comments and share them with others. Separate semi-structured interviews were conducted with students via WhatsApp in an online environment. The teacher gave students a rubric as indirect feedback and evaluation criteria when grading their assignments.

The scoring rubric was used for two purposes: (1) as a form of indirect feedback (Anson, 2015; Denton, 2014) to raise students' knowledge of the scoring and writing sections of the assessed assignments and (2) as a criterion to reduce subjectivity and bias in the scoring process. Content, organization (cohesion & coherence), lexical appropriateness/ word choice, overall structure / grammatical consistency, and editing (spelling, punctuation, and capitalization) were

assessed using a rubric with five levels of performance (rows) ranging from 1-deficient to 5-distinguished/ exemplary. The items on the rubric were adapted from two previous studies (Denton, 2014; Yamanishi et al., 2019), and the lowest and highest possible scores for each student were 5 and 25, respectively. The writing assignments were scored twice by the same instructor to increase the reliability of the scoring procedure. Each score was multiplied by four to reduce the psychological load and aid students in overcoming psychological barriers. As a result, each essay's highest and lowest scores were 100 and 25, respectively.

Procedure

In the first phase of the study that investigated the impact of various feedback types on students' writing performance, students in groups one, two, and three received textual, audio, and screencasting feedback types, respectively. The instructor selected the topics for the student writing, and students were not given a choice to ensure that the validity and reliability of the writing evaluation were not compromised in the first phase of the study. The study's second phase, which examined students' expectations and preferences based on their experiences with various feedback types, required each group to receive all feedback types. Students could choose the writing topics based on their interests during this stage. Figure 1 shows the procedures used in different phases of the study.

Figure 1

The schematic representation of the multimodal feedback delivery
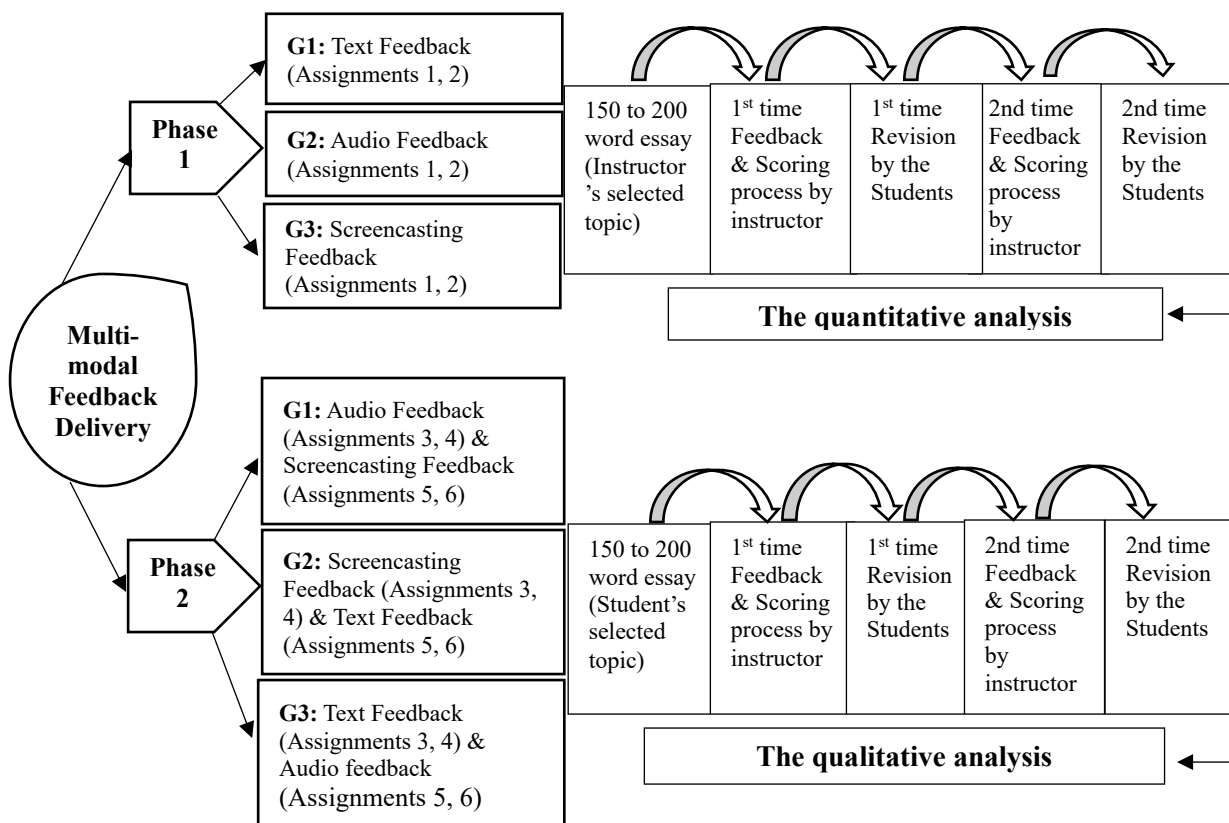
During the 14-week course, students were asked to complete six 150–200-word essays (i.e., one essay each week) while they had an opportunity to choose a topic among 12 given topics. The types of essays included explanatory, narrative, creative, and persuasive essay writings. Text-only feedback was presented during the first two assignments, audio-only feedback in the second

two assignments, and screencasting feedback in the third two assignments (the order of delivering feedback to the groups is presented in Table 1). At the beginning of the course, a training session related to writing assignments and feedback types was held. Students were initially expected to write down their assignment (in MS Word) throughout the week and send it to their teacher for scoring and feedback, following process-oriented writing (Nunan, 2001). After students had completed their assignments, the instructor (an MA student in TEFL with five years of experience teaching English) provided necessary feedback and scored students' essays using the rubric (see Appendix B) (West & Turner, 2015) in an asynchronous setting. The instructor reviewed students' assignments, provided comments, and shared them with the students via email or WhatsApp based on their preferences. Following Denton's (2014) recommendations, the positive and negative aspects of students' writing assignments were addressed. Text-only feedback included track changes in Microsoft Word to provide the required information (Appendix C). Students were informed orally about the problematic areas in their assignments in audio-only feedback, given in 3–6-minute mp3 files. Students received audio feedback in English and Persian, depending on their preferences (Appendix D).

Meanwhile, screencasting feedback was provided as personalized video screencasts with narrations ranging from 3 to 5 minutes (Appendix E). Based on the instructor's feedback, the students had to revise their initial drafts and re-submit the revised essays. Students' problems related to grammatical accuracy, organization, lexical appropriateness, cohesion, and coherence were included in their feedback. A rubric was used as an assessment criterion in all three feedback forms (see Appendix B) to ensure that these three feedback modes are comparable. The degree of the explicitness and implicitness of the feedback given was based on their proficiency levels and the affordances of each feedback type. The other problematic areas in students' writing were ignored to avoid cognitive load. The students were informed about their errors in the implicit text-only feedback by highlighting their problems and providing guidance on addressing them using track changes in MS Word. In the explicit text-only feedback, the problems were both highlighted and corrected. After highlighting the students' writing problems in the audio-only feedback, the instructor recorded his voice. He provided oral assistance and implicitly mentioned the line where the problem occurred. The instructor located the problem on the line and corrected it orally, giving explicit audio mode feedback. The same procedure was repeated in screencasting feedback. After students had submitted their final drafts, semi-structured interviews (see Appendix A) with ten open-ended questions were conducted to learn about their impressions and preferences regarding various feedback types.

Data Analysis

One-way ANOVA and post-hoc tests (i.e., LSD) were run with students' L2 writing scores to determine any significant differences among the three groups and examine which feedback type had a more significant effect on students writing performance. The qualitative data were collected through semi-structured interviews to determine the participants' preferences and perceptions about different types of feedback provided by one of the researchers who played the instructor role for the online groups during the course. The interviews were held separately for each participant. The thematic analysis (Boyatzis, 1998) was used to analyze the interview data to discover the most important themes regarding participants' preferences and perceptions towards different types of feedback provided (i.e., text/written audio, screencasting).

Results

The quantitative analysis

Two one-way between-group analyses of variance (one with students' initial scores and one with their final scores) were conducted to determine if there were statistically significant differences between the means of the three groups in this study. Multiple comparison tests (i.e., LSD post-hoc tests) were then used to see which group performed better and which feedback type was the most effective.

Initially, the assumption of normality was checked. As the results indicated, the three groups' distributions were associated with skewness and kurtosis at (-.006 and -.314;.741 and.594; -.093 and -.305) levels, which were less than /2.0/ and /9.0/ for all three groups, respectively (Schmider et al., 2010). Additionally, the assumption of homogeneity of variances was evaluated and satisfied based on Levene's F test, F (2, 57) =1.036, p=.361. Next, we used a one-way ANOVA with students' final L2 writing scores to check statistically significant differences among the three groups' means of their L2 writing initial scores. The means differences between the students' L2 writing initial scores for G1, G2, and G3 are presented in Table 2.

Table 2

The result of one-way *ANOVA of students' initial scores*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	133.300	2	66.650	1.516	.228
Within Groups	2506.300	57	43.970		
Total	2639.600	59			

As indicated in Table 2, no significant differences existed between the groups regarding their initial L2 writing scores [F=1. 516; p<.05; p=0.228]. As a result, we can run a one-way ANOVA to examine any possible statistically significant differences between the three groups' means in terms of their final L2 writing scores. As a result, any significant difference can be attributed to the feedback provided, as students' baseline scores are homogenized, and no significant differences are reported.

The assumptions of normality for students' final scores were evaluated and determined to be satisfied as the three groups' distributions were associated with skewness and kurtosis at (.250 and -.261; .383 and-.574; .135 and -.517) levels, respectively, which are less than /2.0/ and /9.0/ for all the three groups (Schmider et al., 2010). Furthermore, the assumption of homogeneity of variances was evaluated and satisfied based on Levene's F test, F (2, 57) =3.246, p=.046.

The descriptive statistics associated with students' L2 writing performance across the three groups are presented in Table 3. The results indicated that G1 was associated with the smallest mean (*M*=69.55, SD=7.917), G2 with an average mean (*M*=78.50, SD=1.143), and G3 with the highest mean (*M*= 87.60, SD=4.511).

Table 3

Mean differences associated with students' final scores across the three groups

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
G1	20	69.5500	7.91717	1.77033	65.8447	73.2553	55.00	86.00
G2	20	78.5000	5.11448	1.14363	76.1064	80.8936	71.00	88.00
G3	20	87.6000	4.51197	1.00891	85.4883	89.7117	80.00	96.00

Total	60	78.5500	9.50722	1.22738	76.0940	81.0060	55.00	96.00

A one-way ANOVA was performed to examine whether any significant difference existed between students' final scores regarding their L2 writing performance after receiving the required feedback. Table 4 shows the mean differences between the students' final writing performance scores.

Table 4

The results of one-way *ANOVA of students' final scores*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3258.100	2	1629.050	44.755	.000
Within Groups	2074.750	57	36.399		
Total	5332.850	59			

Table 4 shows a significant difference between the participants' final scores for the three groups [F=44.755; p<.05; p=.000]. Therefore, it appears that the provided feedback positively affected students' L2 writing performance. The statistically significant ANOVA was further followed up using Fisher's LSD posthoc tests to identify the nature of the differences between the three means. According to the test results, it was indicated that a statistically significant difference at the p < .05, p = .000 level existed between the three groups: F (2, 432) = 4.6, p = .01. Table 5 shows the means, standard errors, and 95% confidence intervals for each group.

Table 5

The result of the LSD posthoc *Multiple Comparisons tests with students' final scores*

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
G1	G2	-8.95000*	1.90786	.000	-12.7704	-5.1296
	G3	-18.05000*	1.90786	.000	-21.8704	-14.2296
G2	G1	8.95000*	1.90786	.000	5.1296	12.7704
	G3	-9.10000*	1.90786	.000	-12.9204	-5.2796
G3	G1	18.05000*	1.90786	.000	14.2296	21.8704
	G2	9.10000*	1.90786	.000	5.2796	12.9204

*. The mean difference is significant at the 0.05 level.

The results of multiple comparisons of students' final scores in Table 5 showed a statistically significant difference between G1 and G2 at *p* = .000. As presented in Table 3, the means for G1 and G2 were (M 69.55 and 77.50), respectively, indicating a difference in favour of G2. The difference between G1 and G3 was also statistically significant at *p* = .000. The compared means between G1 and G3 presented in Table 3 indicated that G3 outperformed G1 in their final scores. Finally, the difference between G2 and G3 was statistically significant at the *p* = .000 level. The descriptive statistics in Table 3 indicated the differences in favour of G3 as the means for G2 and G3 were (*M* 78.50 and 87.60).

According to the data above, providing students with all three feedback types significantly improved their L2 writing performance. The data also showed that G3 students' L2 writing performance improved more than the other groups (G1 and G2), indicating that screencasting was the most effective type of feedback used in the study. This demonstrates that providing

students with screencasting feedback increases their chances of success more than giving them audio-only or text-only feedback.

The qualitative analysis

This study used thematic analysis to uncover emerging key themes by examining transcribed data from the interviews. The data were translated into English and then coded according to open coding principles (Charmaz, 2006) to uncover the most important core variables relating to the participants' perceptions and preferences towards multimodal feedback (i.e., text/written, audio, and screencasting). A bottom-up approach was used to identify the preliminary themes of the initial factors and their further classification into related categories. An independent reviewer evaluated and identified themes to ensure they were compatible with the entire text. The thematic analysis of the transcribed interview data uncovered themes concerning the students' perceptions and preferences towards online multimodal feedback, including challenges in receiving the feedback types, the types of preferred error correction methods (i.e., highlighting, circling, underlying, correcting, mentioning, and giving score), and finally, the preferred writing sections (i.e., content, organization, grammar, structure, editing, and lexis) to be corrected.

Table 6. presents students' perceptions and preferences about multimodal feedback from the semi-structured interviews. Students expressed an overall positive view toward receiving multimodal feedback on their assignments. The most commonly cited benefit was the usefulness of getting comments in multiple formats like text, audio, visuals, etc.

Table 6
Themes emerged from the semi-structured interviews

Theme	Category	Examples
Multimodal feedback usefulness	Overall value for revision and motivation	"Receiving feedback in these formats motivated me to revise my assignment and was beneficial for my revision process; I loved them very much." (Sara)
Text/written feedback effectiveness	Detailed and directive feedback	"Text/written feedback was more directive, detailed, and specific because my instructor pointed out the words or the structures that I needed to change or modify." (Negar)
	Impersonal nature	Some students noted that written forms could seem impersonal at times.
Audio feedback benefits	Increased comprehension	"I enjoyed receiving audio feedback because I

		understand it better. It sticks in my mind more than written feedback because it consists of more details and specific information." (Amir)
	Relational benefits	"I liked audio feedback, which helped me build a closer connection with my instructor because I could feel from my instructor's tone whether he is satisfied with my assignment, which is absent in written format." (Sajad)
	L1 feedback	"The L1 feedback was more informative for me, and I could understand the explanation better in audio feedback." (Negin)
Screencasting feedback preferences	Simultaneous audio-visual input	"Screencasting feedback was more effective and useful than other types because seeing and hearing the instructor's comments simultaneously was easier than understanding feedback written or orally recorded on an assignment." (Nadia)
Multimodal feedback challenges	Technical issues	Some students noted technological problems playing audio files or accessing screencasts depending on their device capabilities.
	Accent comprehension	A student reported that "the only problem for receiving the audio feedback was the instructor's accent, which sometimes was not understandable for me."

Expected feedback	Language accuracy, content, and editing guidance	"I expect my instructor to tell me about my grammatical errors/mistakes and the lexical appropriateness. Which part should I improve if I need to use more formal/informal words?" (Rozbeh)
		"In addition to grammatical correction of my writing, I expect my instructor to provide the general idea about the content in terms of the expected message. If not, which part should I improve?" (Ayda)
Error detection preferences	Highlighting mistakes digitally	"I prefer highlighting the mistakes/errors. I think it is more effective than the other methods; you can recognize where your mistakes/errors are because they are marked in a different colour." (Roham)

Generally, participants/students had positive attitudes towards all types of provided feedback on their writing assignments in this study. They preferred the comments or corrections supplied via screencasting medium as the most effective types of feedback as they offered simultaneous auditory and visual features.

Discussion

Unlike previous studies (Anson, 2015; Fawcett & Oldfield, 2015), which focused on the effects of corrective feedback on students' single writing performance rather than the long-term effects of feedback, the findings of this study revealed that all feedback types had a positive effect on students' subsequent L2 writings, demonstrating their effectiveness in assisting students in improving their future writing skills. This corroborated the findings of (AbuSeileek & Abualsha,2014; Bakla,2019; Kılıçkaya, 2019) in which computer-mediated corrective feedback supported students' L2 learning (Bahari, 2020) and improved their writing performance (Rassaei, 2019). This finding also supports Yu and Wu's (2020) study, which reported that students preferred multimodal feedback, which included static charts, dynamic graphics, tables, and narrated text. The results indicated that screencasting feedback provided in group 3 (G3) was the most effective type among others (i.e., text/written-only, audio-only). In this study, the video, audio, and text modes changed the language used to give feedback. The text feedback provided

seemed more contracting than expansive video comments. This might be related to constraints inherent in delivery modes, such as the limited space to edit texts or the time allowed in audio and video feedback related to the file size. This finding was consistent with Cunningham's (2019) results, which suggested that the mode of feedback delivery tends to influence the interpersonal dimension of feedback, as evidenced by language choices. Alvira's (2016) finding also supported this finding that combining coded, written, and oral feedback with screencasts significantly increases students' paragraph-level writing skills.

Similarly, the thematic analysis uncovered students' positive attitudes toward all feedback types used in this study. They indicated that receiving multimodal feedback improved their L2 writing skills. Unlike Bakla's (2019) findings, in which no significant difference was found among the three modes of provided feedback for the essay-revision task, students in this study reported screencasting feedback as the most preferred type. They felt that screencasting feedback helped them feel more connected to the instructor and the course. They indicated they understood the feedback better and were more likely to accept it for future assignments. Theoretically, this finding supports the assumptions of cognitive load theory, which proposes that simultaneous hearing and watching of the feedback strengthen students' comprehension of the comments (Kalyuga et al., 1999). This result is consistent with Moreno and Mayer's (2002) study, which found that combining audio and video to present comments improves students' comprehension and learning. Most participants pointed out that screencasting feedback enhanced their understanding and learning more than audio or text-only feedback. This finding supported that of Grigoryan (2017), which reported that integrating different modes, such as audio and video, increased students' comprehension more than text-based feedback. This finding was in line with the results of several studies (Anson, 2015; Denton, 2014; Henderson & Phillips, 2015) that reported screencasting as an acceptable alternative delivery mechanism. Furthermore, these studies noted that screencasting was more practical, personal, and constructive than the other two modes (Turner & West, 2013; West & Turner, 2015). Ali (2016) reported that EFL students enrolled in an academic writing course at an Egyptian institution who received screencast video feedback outperformed the control group who received written feedback.

Students in this study favoured audio feedback over text/written feedback since they believed their teacher could communicate their thoughts more openly and provide more details in audio feedback. They also explained that audio feedback had more prolonged effects than text/written feedback, as they were supposed to find the errors suggested by the instructor. This finding also aligns with Ice et al. (2010), who stated that audio commenting enhanced the quantity and power of the provided feedback. Furthermore, it corroborates the studies of (Ducate & Arnold, 2012; Roy, 2019) in which audio feedback was the most effective type of feedback by most of the students. In contrast to Norton, L. S., & Norton's (2001) research, in which students complained about the vagueness and ambiguity of written feedback, low-proficiency students in this study regarded text feedback as one of the most valuable types of feedback, which is consistent with the findings of (Morris & Chikwa, 2016; Norton, L. S., & Norton, 2001).

Students preferred the instructor's feedback on their writing performances' overall structure, grammatical accuracy, and linguistic appropriateness. This finding confirmed the results of AbuSeileek and Abualsha'r (2014) and Lee (2010), which called for focusing on different writing aspects, including local and global sections. Concerning error detection and correction methods, most students preferred highlighting and correcting the errors as their favourite detection methods and circling, mentioning, and underlying the errors as the second most important alternatives.

Based on the student's preferences, all types of feedback (text, audio, and screencasting) were delivered in Persian and English. Students favoured audio feedback over written feedback,

but students with different proficiency levels had other preferences. When feedback was provided in English, low-proficiency students preferred written feedback over audio feedback because of its convenience in finding information and the ability to compare the correct and erroneous sections. This aligns with Ice et al. (2007), who assert that text comments are more suitable for addressing lower proficiency writing issues. They argue that text comments offer students an accessible and detailed reference to their writing problems, aiding in more effective development of writing skills.

Students preferred audio feedback over written feedback when provided feedback was in Persian as their first language. High-proficiency students had better recall and favoured audio feedback over written feedback in Persian (L1) and English (L2). On the other hand, low-proficiency students preferred audio feedback over written feedback only when provided in their native language. This result is consistent with Wilken's (2013) findings, which found that low-proficiency students found L1 useful in vocabulary learning and reading comprehension because they could interpret feedback better in L1. Furthermore, L1 as a psychological tool for processing L2 writing (Storch & Wigglesworth, 2003) appears to have impacted students' confidence and autonomy in writing, both essential in any writing instruction (Wilken, 2013). Thus, it is recommended that teachers allow learners to receive feedback in both L1 and L2.

Regarding the pedagogical implications of the study, teachers are recommended to integrate multimodal methods for delivering feedback in both L1 and L2 as alternatives to traditional written feedback to support learners' writing performance. Elola and Oskoz (2016) indicated text feedback commonly provided by Microsoft Word does not encourage lengthy and detailed feedback, given the nature of the medium. Thus, teachers should use text feedback for low-level writing issues (Ice et al., 2007), such as spelling errors. Regarding audio feedback, Anson (2015) points out that when students receive audio feedback, they are significantly more likely to believe that the instructor has invested time in correcting their assignment, which has significant implications for a student's overall course experience. The study's findings showed that screencasting feedback was the most effective type, which most participants also preferred. Because of the benefits to students, using screencasts to provide feedback on writing is highly recommended. Screen capture technology facilitates educators in delivering personalized encouragement and detailed feedback to students, particularly in online assignment submissions through email or other digital platforms. This technology allows for a more intimate and immediate interaction. It addresses the common feeling among students, as Howland and Moore (2002) noted, of feeling disconnected from their instructors during online coursework. According to West and Turner (2015), the potential to provide more detailed explanatory feedback may be required to engage students. As a result, teachers should consider using screencasting feedback to increase student engagement and expose them to a more detailed explanation. Thanks to unprecedented instructional technology developments, multimodal feedback delivery can help educators meet learners' diverse needs.

One limitation of the study is related to the relatively small sample size of 20 for each and its potential impact on the study's results. This study investigated the effectiveness of the three types of feedback provided and compared them to find the most effective types through a counter-balanced design. The design might have influenced students' perceptions and preferences because of the sequencing exposure to different feedback modes. While this study focused on the effects of asynchronous multimodal feedback in EFL writing, further research could investigate its impact in a synchronous online context. Furthermore, exploring teachers' attitudes toward multimodal feedback might shed new light on feedback implementation mechanics in the EFL context.

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Appendix A. The interview questions.

1. What was your initial impression about instructor's feedback?
2. Which types of following feedback (i.e. text/ written, audio, screencasting) have you experienced in your assignments as a language learner? And in what areas such as: (content, grammar, lexicon, etc.) have they generally been?
3. Explain the challenges/issues you have faced during the process of receiving feedback? Explain your instructor's strengths and weaknesses in delivering the feedback, and state your expectations of your instructor to give feedback in the future.
4. To what extent feedback helped you to improve your writing skills? And to what extent were you able to correct your errors/mistakes accurately according to the instructor's feedback?
5. Express your ideas about the types of feedback you received (i.e. text/written, audio, screencasting) write down the positive and negative aspects of each.
6. Which type of following feedback (i.e. text/written, audio, screencasting) did you find more understandable, effective, legible and more transparent? Why?
7. What type of the following feedback (i.e. text/written, audio, screencasting) would you prefer in your future assignments? Why?
8. Which of the following area(s) (content, grammar, structure, editing, lexicon, etc.) would you prefer your instructor provide feedback in your future writing assignment? Why?
9. Which of the following methods (highlighting, circling, underlying, correcting, mentioning, and scoring) do you prefer and find more effective? Why?
10. Explain any other comments you would like to share or to highlight? (Please explain)

Appendix B. The rubric used for scoring students' assignments.

Levels of performance	Content	Organization (Cohesion & Coherence)	Lexical appropriateness/ Word choice	Overall Structure / Grammatical accuracy	Editing (spelling, punctuation & capitalization)	Score
Exemplary/ Distinguished (5)	All content is relevant to the task. Contents fulfill the task requirements. Target reader is fully informed.	Text is generally well-organized and coherent, using a variety of linking words and cohesive devices (such as also, moreover, however, nevertheless, etc.) Demonstrates an orderly flow of ideas. Sentences connect naturally and logically. Shows a strong command of the conventions of standard written English and is free or virtually free of errors.	Uses a range of vocabulary, including less common lexis, effectively and precisely. Vocabulary is varied and accurate. Word choice throughout the essay are targeted to enhance topic development. Demonstrates a consistent use of precise word choice.	Has a wide variety in sentence structures. Uses of compound and complex sentences. Impressive attempts at higher level structure. Shows a strong command of the conventions of standard written English and is free or virtually free of errors. The structure is both logical and engaging. Perfect control of tenses. Accurate use of pronouns, articles, adjectives and all verb forms including "to be"	No spelling, punctuation and capitalization errors. Almost all words spelled correctly. Correct ending punctuation in every sentence. Begins all sentences with uppercase letters.	
Proficient (4)	Displays solid content knowledge and makes connections between the content and other disciplines.	Is mostly cohesive and demonstrates effective use and control of language, using appropriate linking words and cohesive devices. Sentences are sufficiently connected. Cohesive devices are used, but they may be occasionally mechanical or repetitive.	Uses a range of everyday vocabulary appropriately, with occasional inappropriate use of less common lexis.	Uses of compound sentences. Has variety in sentence structures. The argument follows a clear logical arc, but small gaps, digressions, or a lack of transitional language interrupt the flow of ideas in a few places. Arrangement of words in sentences is grammatically correct. Uses a range of simple and some complex grammatical forms with a good degree of control. Errors do not impede communication.	The text contains very few or occasional spelling, punctuation and capitalization errors. Only occasional misspellings of phonetically irregular verbs. Occasional punctuation errors. Few or occasional errors in capitalization.	
Competent (3)	Minor irrelevances and/or omissions may be present. Target reader is on the whole informed.	Text is connected and coherent, using basic linking words and a limited number of cohesive devices. Sentences may be Poorly connected. Cohesive devices Are missing, and/or they are mechanically or repetitively used.	Uses everyday vocabulary generally appropriately, while occasionally overusing certain lexis. Although some errors in word choice, there is variety in vocabulary that enhances the topic.	The argument may be too simple and so does not develop over the course of the essay. Or the argument may be incoherent or too broad, without any clear organization or transitions. Uses simple grammatical forms with a good degree of control. While errors are noticeable, meaning can still be determined.	No more than one spelling, capitalization and punctuation errors per sentence.	

Progressing (2)	Irrelevances and misinterpretation of task may be present. Target reader is minimally informed.	Text is connected using basic, high-frequency linking words. Text relies on single idea. Demonstrates little or no cohesion and limited skill in the use and control of language.	Uses basic vocabulary reasonably appropriately. Vocabulary is too simplistic to fully address the topic. Demonstrates general or vague word choice; word choice may be repetitive.	Has limited variety in sentence structures; sentence structures may be repetitive. Shows a limited control of the conventions of standard written English and contains errors that detract from the quality of writing and may impede understanding. The structure of the essay is, at times, confusing. Uses very simple grammatical forms with some degree of control. Errors may impede meaning at times. Noticeable mother tongue influence.	Limited spelling and punctuation errors handicap topic development. Has some difficulty in capitalization	
Deficient (1)	Content is totally irrelevant. Target reader is not informed.	Text is connected poorly that impedes understanding of ideas. Does not have a discernible progression of ideas. Demonstrates little or no cohesion and inadequate skill in the use and control of language.	Confusing word choices that makes essay difficult to understand.	Shows weak or no control of the conventions of standard written English and may contains numerous errors that undermine the quality of writing. The structure of the essay is confusing—jumping around, missing transitions, or taking on too many ideas at once. Many sentences have basic grammatical errors (S-V agreement, verb form, pronoun agreement, run on sentence, etc.). The readers must guess at meanings. Important gaps exit in basic grammar.	Frequent spelling and punctuation errors make essay difficult to understand. Reversals in vowel combinations: ie/ei (friend), ai/ia (said) Little or No evidence of correct capitalization Irregular use of uppercase where not required and even in middle of words.	

Total points 1st (initial) draft ..../25   Revision/ 2nd (final) draft .... /25

Appendix C. A sample of text-only feedback.

Total Score = 72 out of 100

Appendix D. A sample of audio-only feedback.
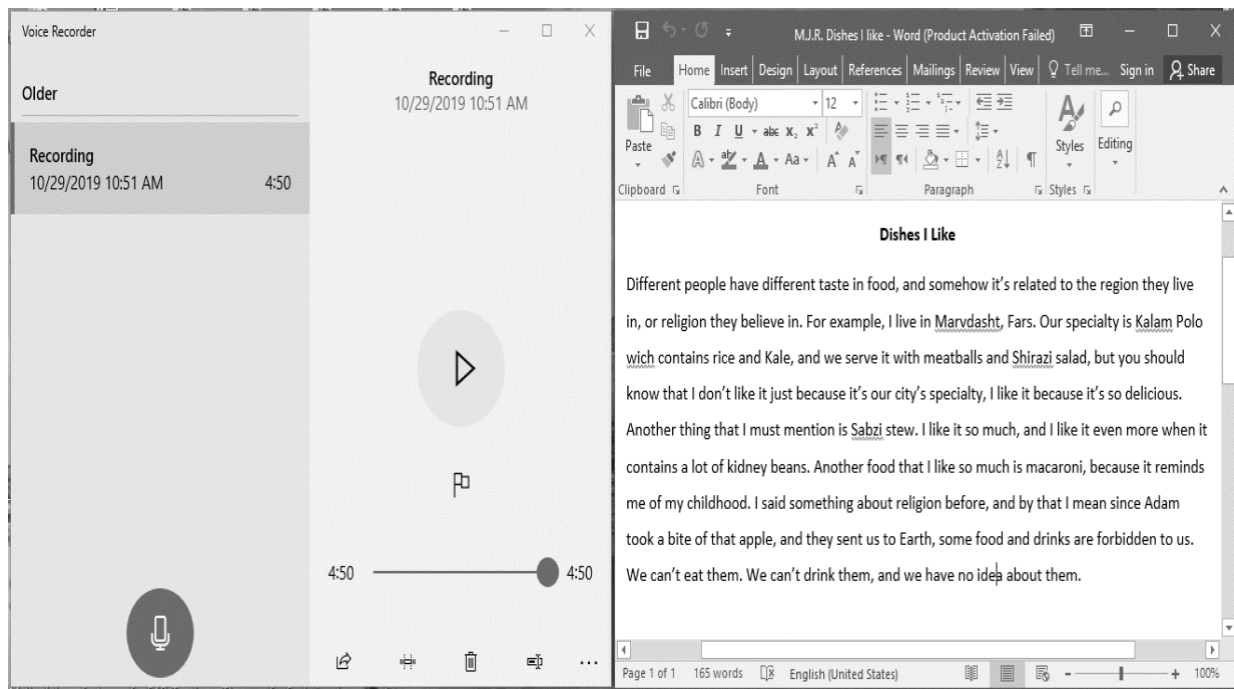
A sample transcript of audio feedback

Hi Millad, First of all I want to appreciate your kind cooperation with me, then, I'm going to spend a few minutes talking about some points about your assignments. You are a good writer and you write quite well but as I evaluate your work based on the pre-specified criteria having five parts including: content, organization (by organization I mean cohesion and coherence of your writing), lexical appropriateness (I mean word choice), Overall structure (I mean grammatical accuracy) and editing (addressing capitalization errors, spelling errors, and punctuation errors), there are some suggestions for you to improve your writing:

Overall, your writing shows that your writing has improved comparing to your previous drafts.

At the beginning of line one you wrote 'I visit my friends' but you didn't mention time reference, for example how often you visit them, so it's better to add time reference here. At the beginning of line two you wrote 'my little brother' where the first letter of any starting sentence must be capitalized. At the middle of line two you wrote 'In her free times' as a matter of fact time is non-countable, modify it. Next, At the beginning of line three you wrote 'the garden' the garden it is not definite to the readers for example which garden do you mean, so using definite article here is not right.   At the end of line four you wrote 'when he has free times' here again time is non-countable, you have to be more careful about using countable and non-countable nouns in your future writings. Then, in line six you wrote 'he likes that because he enjoys doing that' what do you mean? It is not clear what you are trying to say here, he likes what? At the end of line six

you linked two sentence with 'because' but you have put 'comma' before 'because' it seems non-standard; avoid separating the 'main clause' from the 'subordinate clause'. No problem is found in the rest of your writing. Thank you.

Your score is 82 out of 100

Appendix E. A sample of screencasting feedback.
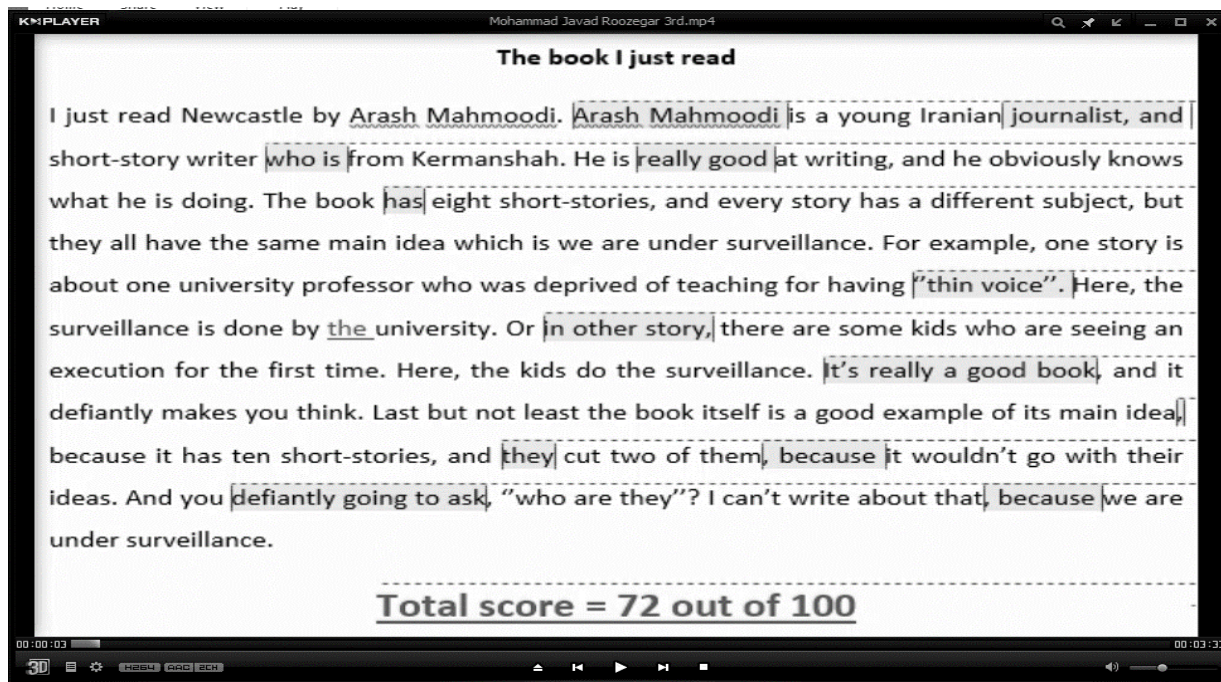
A sample transcript of screencast feedback

Hi Mohammad, first of all I want to thank you for being a part of my research community and appreciate your kind cooperation during the course. Then, I'm going to spend a few minutes talking about some strength and a few weaknesses of your assignments as usual; you have a good command of knowledge in writing in English. There are some minor problems which should be mentioned to help you to improve your writing. Meanwhile, the cursor will be used to indicate the highlighted mistakes.

Here, at the beginning of your writing you wrote 'Hi my name is bla bla bla' what's the problem here is missing to put 'comma' after introductory word 'Hi.' The next problem is here, with writing your brother's name with a lower case, all the proper nouns must be written with upper case. Here again you wrote my friend's name is Behzad and Mehrdad; Wrong to be verb is used. Here again you used wrong word order, you should follow 'SVO' word order in English. Your other problem is here with spelling this word. The problem here is wrong word choice for this sentence; it should be replaced with more formal words. The rest of your writing is fine. Good luck.