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Impact of Online Peer Assessment via Wiki on Grammar Accuracy of EFL Learners: A Mixed Methods Investigation

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Abstract

With the emergence of new online technologies and computer-mediated language teaching, many recent studies have been conducted on the effectiveness of online peer assessment. The present mixed methods study examined the effect of online peer assessment on Iranian intermediate-level EFL students` writing accuracy. In the quantitative phase of the study, 28 EFL learners studying in an English institute were randomly assigned to two groups and were taught for 14 sessions. The experimental group attended online peer assessment on Wiki as a forum for out-of-classroom discussions regarding English writing, and the control group attended face-to-face peer assessment. To analyze the numerical data collected through a pretest and a posttest, an independent sample t-test was used to investigate the difference between the two group scores before and after the assessments. The results showed that the difference between the posttest means of the experimental group and the control group was significant. Moreover, the results of analyzing the qualitative data, gathered through focus-group interviews, also confirmed the quantitative results, revealing the positive opinions of the interviewees about the role of technology in language learning. Therefore, online peer assessment seems to have benefits that make it worthwhile despite all the difficulties and extra effort of introducing and teaching it to students. The findings may have implications for material designers, language teachers, and language learners.

Keywords: accuracy, grammar, language assessment, online peer assessment, Wiki, writing

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1. Introduction

Today, new technologies have an important place in the educational process. Language teaching and learning is one of the academic areas that is highly interrelated with technological tools of teaching and learning. In this respect, computer-assisted language learning (CALL) that integrates information technology has received more attention (Fotos & Browne, 2004, as cited in Lin & Yang, 2011). Among the affordances of technology and computers, a number of different tools including blogs and Wikis are available (Ahmadi & Marandi, 2014). As Lin and Yang (2011) put it, Wiki is one of the innovative computer-assisted language learning that may be beneficiary to English writing. Leuf and Cunningham (2001) believed wiki technology will facilitate the evaluation of knowledge creation and publishing.

Through features like user edit ability and detailed page history, Wikis serve as powerful mediating artifacts for collaboration and support for collective production (Lund, 2008). These applications allow users to upload, build, and create content on the Web only by using their Web browser; they do not need any specialized technical knowledge (Matthew & Callaway, 2009). The collaborative context provided by Wikis encourages users to negotiate, collaborate with others, generate sparks of creativity as others react, reflect, have their insights deepened or changed and, in turn, contribute something new, learn from other people's work and they can easily complete and extend group work by continuing it asynchronously outside the course (Lamb, 2004).

Due to the shortcomings of traditional peer assessment procedures like the shortage of time for doing the job, the possibility of assessing a few papers and also postponing a part of the job most of the time (Macdonald, 2002; McConnel, 2002), and the significant role of peer assessment in the language learning process, one of the research areas which could be considered important is exploring new peer assessment forms in order to facilitate and accelerate the process. As one of the not-so-much-focused modern tools in peer assessment activities, Wiki was the main concern of this study. This study attempted to address the following two questions:

RQ1: Does Wiki as an online tool for peer assessment activities have any effects on Iranian EFL learners' grammar accuracy at the intermediate level?

RQ2: What are the students' perceptions of Wiki-based and face-to-face writing assessments?

2. Literature Review

2.1. Language Assessment

New approaches to learning and instruction such as the learner-centered approach require new assessment practices to make students active participants in all phases of the assessment process. As Scouller (1998) declared assessment methods should be associated with students' learning approaches; therefore, teachers must implement types of assessment tools that improve student learning. In fact, assessment of learning shifts toward assessment for learning. (Strijbos & Sluijsmans, 2010, Dysthe, 2004, as cited in Gielen & De Wever, 2012). For this purpose, formative assessment is a process in which students are evaluated to help them continue their growth process and also guide learners to identify their strengths and weaknesses (Brown et al., 2018), in this kind of assessment both teachers and students provide appropriate feedback to the students to improve and support their learning (which leads to closure the gap between current (actual level of performance) and desired performance (Sadler, 1989).

One of the common practices of formative assessment is peer assessment (PA) (Gielen & De Wever, 2012). The use of peer assessment as a type of evaluation method has immensely shifted the role of assessment itself. Peer assessment increases interaction between students and teachers, and students themselves can help the students know more about other students' ideas during the learning experience (Butler & Hodge, 2001; Falchikov, 1995; LeMare & Rubin, 1987). Topping (1998) and Cheng & Warren (2000) elucidated that peer assessment has an effective influence on the learning process both as a learning tool and as an assessment tool (Gielen & De Wever, 2012). As an assessment tool, peer assessment creates effective benefits for students. It increases motivation and makes them feel having a greater investment in what they are doing and also being assessed by someone other than their teacher, gives learners greater ownership of the learning they are undertaking and invest more in the preparation of their initial work and the subsequent revision of the work and it also develops active, autonomous, responsible, and relfective learners (Humphrey et al., 1997)

Scholars explained some conditions under which using peer feedback may produce positive effects on LP (Schunemann et al., 2017). Engaging students in the procedures of the assessment is broadly accredited as a useful technique for developing self-regulation because it permits students to find mistakes and create some strategies to solve them (Zamora et al., 2018).

Since the peer assessment is performed based on a set of criteria, students can review their peers' assignments. Thereby, peer assessment can be

considered as a process by which students assess or are assessed by their peers (Topping et al., 2000). Peer assessment contains many properties of collaborative learning. Collaborative learning is an approach in which students have a goal and work together in order to reach their common goal (Dillenbourg, 1999). As far as peer assessment focuses on interaction, we can consider it as a form of collaborative learning. Determining, negotiating criteria, and assessing their group members by fellow students and providing feedback, confirm that peer assessment is a specific pedagogical approach to collaborative learning (Prins et al, 2005).

Peer assessment can be applied in both traditional and virtual environments. Integrating peer assessment with the Internet is one of the current trends in education at all levels. As the traditional face-to-face classroom is based on a paper-and-pencil format, it has effort-demanding aspects such as collection, preparation and assignment of student work, compilation and calculation of feedback provided by peers, and the returning of feedback to individual students, especially if the size of the class is big and it would be delays in the grading procedure and so on (Davies, 2000). Davies (2000) claimed that such problems could be solved by the introduction of computer-aided assessment.

A recent example of peer assessment during CSCL is done by Chan and Van Aalst (2004). Students were asked to contribute in a threaded discussion forum, but the criteria by which the students performed their evaluation were set by the teacher in advance. In addition, students were not explicitly trained to apply these criteria. Moreover, studies of peer assessment in CSCL environments in distance education with adult learners are often limited to a quantitative approach whereby students give scores to peers on a list of criteria (Topping, 2003).

Using online peer assessment activities can not only speed up grading time and provide students with more thoughtful feedback but also help students to interact with the teacher and other students without limitation of time and location (McConnell, 2002). However, an important concern of implementing an online learning environment in assessment is the scaffolding factor. It is believed that in online peer assessment, scaffolding plays an essential role in the learning process because in such an environment students need to be more self-supporting (Warschauer, 1996).

Double et al. (2020) did a meta-analysis that assessed the impacts of PAs on academic performances in primary, secondary, or tertiary students across domains and subjects. A low to medium impact of PAs on academic performances was discovered. The outcomes suggested that using PAs developed academic performances in comparison with no assessments and

teachers' assessments, but there were no meaningful differences in its impacts from SAs. In addition, meta-regressions investigated the moderating influences of several feedbacks and instructional features (e.g., offline vs online, frequencies, education levels). The findings recommended that the use of PAs was noticeably significant across a wide range of settings.

Online peer assessment can be used to help mitigate these problems and to increase the potential of peer assessment. Numerous online peer-assessment systems such as CAP, NetPeas, Vee heuristic, Web 2.0, and SWORD have been developed to manage peer-assessment efficiently and effectively (Davies, 2000). Li and Cumming (2001) in a case study of a 29-year-old male Mandarin learner of English as a second language with intermediate proficiency in English. The learner wrote, over 8 months, 14 compositions alternating between the uses of a laptop computer as well as pen and paper. The result found that computers helped the learner stay on task longer and produce higher-level concerns in terms of planning, evaluations, and revisions.

2.2. Collaborative Writing

Collaborative writing is a collaborative learning process. Collaborative interaction can improve learners` writing, particularly when they are asked to create texts together and do peer correction (Swain & Lapkin, 1998). Furthermore, while the learners give and receive feedback, they become involved in collaborative scaffolding, which promotes the use of language among learners (Aydın & Yıldız, 2014). Swain and Lapkin (1998) argued that tasks that engage students in collaborative dialogue "might be particularly useful for learning strategic processes as well as grammatical aspects of language". Also, research on L1 writing has shown that writers who worked interactively improved significantly more than those who wrote alone because collaboration helps reflective thinking and idea explaining (e.g., Yarrow & Topping, 2001).

Social software embraces applications that allow learners to interact and collaborate in the online environment, and help the participant exchange their knowledge and information. Social software is the major component of Web 2.0 (Bragg, 2007). The history of using social software goes back to the 1960's when the networked computers were used to increase people`s knowledge and ability to learn (Alexander, 2006). In 2004 as the internet became more entrenched, social technologies enhanced (Deters et al., 2010).

By developing social technologies, students will enter new and previously unknown territory and will benefit from the social dimensions that open before them. Virtual worlds such as Second Life, social tagging systems including Del.icio.us, and massively multiplayer online role-playing games

will help students experience a rich and dynamic collaborative learning education (Boulos et al., 2006). To fully appreciate the role the social web will play in education, it is important to comprehend the concept of communities of practice.

2.3. Wikis in Language Learning

As Lin and Yang (2011) put it, Wiki is one of the innovative computer-assisted language learning. A wiki, one of the Web 2.0 tools, is a website that allows anyone with a web browser and Internet access to web pages from any location. Wiki pages can be used by all to publish new content directly to the Web, including text, images, and hyperlinks. Wikis progressively are used for education purposes mainly in E-learning. They aid different online learning activities that might be impossible in a typical classroom. In wikis, students collaboratively share their knowledge and are not passive in receiving information from their teachers.

Wiki has the potential to complement, enhance, and add new collaborative dimensions to the classroom (Adie, 2006, as cited in Parker & Chao, 2007). In other words, a wiki is a collaborative website that lets users easily and quickly create and edit web pages collaboratively, generate feedback, and track and compare additions, deletions, and changes to the pages within a shared and openly accessible digital space (Matthew & Callaway, 2009).

Wikis has the potential to provide an environment that embodies social-constructivist principles (Vygotsky, 1978) since learners can create and write a comment in an article easily where the result is seen immediately by all members. As a result, learners are actively engaged in their co-construction of knowledge (Boulos et al., 2006). Teachers can also provide feedback whenever it is required. Therefore, Wikis facilitates timely and particularly in-task guidance and improves the learning process (Beaumont et al., 2008).

Several researchers have investigated how students use and perceive wikis for collaborative authoring and group learning (e.g., Bonk et al., 2009; Deters et al., 2010; Elgort et al., 2008; Liu et al., 2022; O'Shea et al., 2006). Research evidence suggests that Wiki is an excellent tool for online collaboration in an educational context (Vassell et al., 2008). Vassell et al. (2008) evaluated the use of Wikis in student group work within Blackboard VLE. They described their experience of using Wikis which merged within Blackboard VLE to conduct and assess students' group projects in two undergraduate and one postgraduate module. The results showed that Wikis can prove a valuable group learning and assessment tool. Furthermore, students considered Wiki as a beneficial tool for facilitating learning.

Wiki's potential for fostering learning has just begun to capture the attention of researchers and teachers in second/foreign language teaching, especially in second-language writing (Li, 2012). Liu et al. (2022) used Wikis for group writing projects in creative English. They assessed the students' opinions regarding collaborative writing on Wikis. They found that Wikis improved students' writing abilities and inspired them to write in English with enthusiasm and positivity. The students gained experience providing and receiving group critique while participating in online collaborative writing.

Also, as Lin and Yang (2011) put it, Wiki is one of the innovative computer-assisted language learning that may be beneficiary to English writing. Web 2.0 tools provide more potential and opportunities for collaborative writing. Chao and Lo (2009) stated that writing on the web engages students more in self-monitoring and peer interaction. It provides a socially interactive environment, encourages student responsibility for learning, and lets students exercise a sense of control over tasks.

It should be considered that the most popular application of Wikis is collaborative writing (Lamb, 2004) and can be used for brainstorming, knowledge construction, project planning, problem-solving, resource sharing, case libraries, assignment submission, presentations, and community building (An, 2010). As long as Wikis can combine multimedia objects, such as pictures and videos, they provide opportunities for the participants to create E-portfolios, digital stories, or other multimedia presentations (EDUCAUSE Learning Initiative, 2005; Engstrom & Jewett, 2005; Lamb, 2004; Parker & Chao, 2007). Collaborative writing assignments with Wikis encourage students to review each other's pieces and truly reflect on and critique what is being put together instead of just pasting separate components together (Ben-Zvi, 2007).

3. Method

3.1. Design

To address the research questions in this study, a mixed-methods research design was chosen. Data were gathered using a sequential design, whereby quantitative experimental data was first collected and analyzed. Consequently, as part of a sequential mixed-methods study that was followed by a qualitative phase using focus-group interviews. The study aimed to provide a realistic depiction of the individuals, emphasizing their qualities.

3.2. Participants

The participants involved in the research were 28 adult female Iranian EFL learners attending an English course, who were randomly selected from

the intermediate level of a private English language institute in Tehran, Iran. The participants were all female and taught by the same teacher. Their age ranged from twenty to forty, with a mean age of twenty-eight. The participants had different educational backgrounds. Participants of the study were all from the intermediate level. The participants were randomly divided into two groups: the experimental group and the control group. Therefore, there was one group experiencing the online peer assessment activities through Wiki as a forum for out-of-classroom discussions, and one control group doing face-to-face peer assessment activities.

The participants of the second phase of the study (i.e., focus-group interview) were a group of 12 EFL students, who had an English writing course. Their ages ranged from 18 to 24. In line with Dörnyei (2007), a heterogeneous sample that consisted "of dissimilar people" was selected, which is "useful in providing varied and rich data that covers all angles" (p.144). Hence, they were not homogenous in terms of their language learning experiences, first language, age, and gender.

3.3. Materials and Instruments

3.3.1. Materials

The second edition of the American Headway (Soar & Soar, 2014) book was used as the instructional material for the intermediate level. The first five lessons of Headway 3 were chosen for the intermediate groups. The writing parts of these lessons were the target activities to evaluate the grammar accuracy of the participants' writing.

3.3.2. Instruments

First, a Wiki-based system is a platform for online collaborative writing and learning. As a high-speed database platform, a Wiki online writing system, with its simple interface and functions, allows users to easily create, edit, modify, and delete web content (Lin & Yang, 2011). The teacher constructed the Wiki by drawing on Wikifoudary (a free website hosting service where anyone can create their own "Wiki" site whose photos are found in Appendix B. Two main pages set up for the Wiki:

(a) Home page for students to sign up and to add their names and their photos;

(b) A discussion forum for posting their text and comments: This page contained two tabs: "post a new thread" and "reply and edit". To add their posts, the students were required to click on the first tab once they logged into the space. This activates the "reply and edit" tab.

Second, to compare the performance of groups, a scale for error annotation, a teacher-made scale for measuring learners` writings, was developed based on Diaz-Negrillo's error annotation scheme for grammar accuracy (Diaz-Negrillo, 2009) as is shown below.

Table 1

Error Annotation Scale developed Based on Diaz-Negrillo's (2009) Error Annotation Scheme

Category	Subcategories	Score subtraction for each error
Clause grammar	Clause constituents	0.5
	Syntactic processes	0.25
	Multiple structures	0.5
Phrase grammar	Phrase constituents	0.5
	Syntactic processes	0.25
	Multiple structures	0.5
Word grammar	Number categories	0.25
	Tense categories	0.5
	Case categories	0.25
Punctuation	All Panctuations	0.25

To check the validity of the error annotation scale developed based on Diaz-Negrillo's (2009) error annotation scheme for grammar accuracy, it was reviewed and verified by two university professors in the field of language teaching. A writing test with the evaluation by this scale was piloted and the internal consistency value for it was acceptable (α= .73). The same scale for evaluation was used to evaluate both the pretest and posttest learner corpus.

Third, an interview protocol was developed based on the themes from the literature on tech-assisted writing pedagogy to investigate the focus-group interviewees' experiences and perceptions of Wikis-based writing. The guide included three themes as follows: a) Technological tools enhance the learning experiences of students, b) Technologies influence students' writing originality and creativity, c) Language learners' way of thinking is transformed after technology use.

Finally, five topics were chosen as the pre-test and posttest topics for the participants to write a one-paragraph essay. These topics were similar to the topic of the first five units of the second edition of American Headway (Soar & Soar, 2014) intermediate level. The writing parts of these lessons were the target activities to evaluate the grammar accuracy of the participants' writing.

3.4. Procedure

The main purpose of the study was to investigate the effect of online peer assessment on learners` language accuracy in one-paragraph writing. A preliminary English Test (PET) published by Cambridge University was

administered to the learners who were attending the intermediate-level English course in the institute to homogenize them in terms of their language proficiency. Then, 28 learners at the intermediate level whose scores on the PET test were two standard deviations below and above the mean of scores (*M*= 16.23, *SD*= 1.76), were selected as the participants of the study. Afterward, the learners were randomly divided into two groups: the experimental group and the control group.

In the third step, the learners were given a writing test with a writing subject from their textbook, as the pretest, and the scores were evaluated by the teacher. The experimental and control groups were exposed to the same instruction. The classes of both were held twice a week for 14 weeks. Each session lasted for an hour and a half. They engaged in various classroom activities including reading, speaking, listening, and writing. The learners wrote a paragraph each session about the topic they were engaged in the class. The experimental group`s members had access to a classroom Wiki. They wrote their paragraphs on Wiki corrected each other and wrote their comments on Wiki as well which was part of their course requirement (the photos are found in Appendix B. Their contribution to Wiki was not optional and learners' posts were assessed as a part of the course requirement. The first step of scaffolding was to provide support with other regulations for learners' self-regulation or for exceeding their ability to do a task. Once learners built up certain knowledge or skills, removing or fading (gradually reducing) support was the second step for learners to work on independently.

In the control group, the same activities were done with the only difference being that they assessed their classmates by correction, gave comments on each other's paragraphs on the paper, and discussed the correction. Afterward, after seven weeks of treatment, another writing test with a subject from their textbook was given to the learners of both groups as the posttest, and the scores were again evaluated for error annotation. Finally, a heterogeneous sample of 12 students, dissimilar in their age, gender, first language, and experiences learning the language, attended the focus-group interview. Their discussions on the themes of the interview guide were recorded and transcribed for the qualitative data analysis.

3.5. Data Analysis

In order to explore the first research question, since two groups of the same proficiency level were involved, a series of independent t-tests were conducted to measure the differences in mean scores. To obtain descriptive statistics, the means type of them were conducted. To investigate the normality of score distribution, the type of descriptive statistics was run. To address the qualitative research question of the study, the focus-group interview data were

transcribed and coded based on the three themes of the interview guide in line with Dörnyei (2007).

4. Results

4.1. Results for the First Research Question

Before assigning the learners to control and experimental groups, the PET was administered to the intermediate-level learners of the institute to select homogenous participants for the study in terms of their language proficiency. The test was administered to omit the learners whose scores were two standard deviations below or above the mean of scores.

Table 2

Descriptive Statistics for PET Test

Group	N	M	SD
Intermediate	28	13.50	1.71
Total	28	13.50	1.71

Table 1 shows the results of descriptive statistics for the PET test (*M*=13.50, *SD*=1.71). As the table shows, the learners' language proficiency was in the same range with a standard deviation lower than 2. Before starting the treatment phase, a pretest was administered to the learners to investigate two issues. First, we wanted to find out if there was any significant difference between the performances of the two groups, and second, to compare the scores with the scores on the posttest. Then the writings of the learners were evaluated based on the teacher-made scale for error annotation and the scores initially were analyzed through the test of normality. As the significance values are more than .05 (*p*=.20), they show that the scores on this test were normally distributed. Table 2 shows the results of the test of normality run on the scores of the pretest.

Table 3

Test of Normality for Pretest

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Group	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	Control	.205	14	.200*	.881	14	.108
	Experimental	.155	14	.200*	.896	14	.163

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Afterward, these scores were subjected the descriptive statistics. Table 3 shows the descriptive statistics of the control group and the experimental group. As shown in Table 3, the mean scores for both groups were very close to each other (*M*=11.36 and *M*=11.72, respectively) with a standard deviation value of 1.36 for the control group and 1.48 for the experimental group.

Table 4

Descriptive Statistics for Pretest

	Group	N	M	SD	Std. Error Mean
pretest	Control	14	11.36	1.36	.41
	Experimental	14	11.72	1.48	.44

An independent sample t-test was run on the data collected from the pretest administered to the learners of both groups. The data in Table 4 shows the results of running an independent sample t-test on the scores of learners on the pretest. The significance value for Levene's test in this table explains that the variance in the pretest had homogeneity (p=.79). As the p-value indicates (p=.55) there was not a significant difference between the performance of control group learners and experimental group learners on the pretest.

Table 5

Independent Samples T-test for Pretest

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
pretest	Equal variances assumed	.069	.795	-.59	20	.55	-.36	.60
	Equal variances not assumed			-.598	19.84	.55	-.36	.60

To measure learners' progress after the treatment phase of the research procedure and also to find out the answer to the research question, is there any significant difference between the EFL learners who attended the online peer assessment and those who did not in terms of grammar accuracy of their paragraph writing at intermediate level, the learners were given posttest. After administration of the test, their writings were evaluated by the teacher-made scale for error annotation. In the first step of analyzing the posttest scores, they were subjected to the test of normality (Table 5).

Table 6
Test of Normality for Pretest and Posttest

Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
control	.191	14	.200*	.934	14	.452
experimental	.147	14	.200*	.968	14	.866

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance.

As shown in Table 6, the significance values for both groups were more than .05 (p=.20) and showed that the obtained scores on the posttest were normally distributed. After running the test of normality, their scores were analyzed through descriptive statistics and independent samples t-test. Table 7 represents the results of descriptive statistics for the posttest (M=14.18, SD=1.32 and M=17.36, SD=1.43 for the control group and experimental group, respectively).

Table 7
Descriptive Statistics for Posttest

	Group	N	M	SD	Std. Error Mean
Posttest	intermediate-control	14	14.18	1.32	.40
	intermediate-experimental	14	17.36	1.43	.43

To find out if the difference in the scores of the control group and the experimental group was significant or not, the scores were subjected to the independent samples T-test. The results of the independent samples T-test run on the scores of the experimental and control groups are shown in Table 8.

Table 8
Independent Samples T-test for Posttest

		Levene's Test for Equality of Variances		T-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
posttest	Equal variances assumed	.212	.650	-5.401	20	.000	-3.18	.58
	Equal variances not assumed			-5.401	19.88	.000	-3.18	.58

The significance value of Levene's test indicates the homogeneity of variance in the posttest (p=0.65). The sig value of the T-test in this table explains that there was a significant difference between the performance of the learners in control and experimental groups of intermediate level (p=.00) with the effect size of 0.52 (Eta^2= 0.52). On the basis of the results of the

independent sample T-test run on the scores of the posttests (p=.00, Eta^2=0.52), the research null hypothesis was rejected.

4.2. Results for the Second Research Question

The interview responses of the focus-group interviewees have been analyzed and juxtaposed to the three themes, extracted from the literature as follows.

Question 1: Do you think that technological tools enhance the learning experiences of language learners?

The interview responses gave a thorough insight into how the student's writing has been aided and their capacity to learn more effectively has been improved by the use of technology. They have asserted that they could not organize and refine their writings. All of the participants agreed that the introduction of technology has completely changed the way they wrote. The following two excerpts show the problems (i.e., lack of any ideas, content and language knowledge gaps, weakness of writing ability, lack of writing experience, no strategic knowledge of writing) they experienced in conventional writing classrooms:

Extract 1: "I got confused due to misunderstanding the writing topics."

Extract 2: "I didn't have much information about the writing process and strategies."

Regarding this, it appears that the students are quite self-assured to use technology to help them improve their writing skills by providing them with necessary knowledge and tools.

Question 2: Do you think that technologies influence students' originality and creativity?

Technological tools play a key role in helping students develop their creative thinking skills. The participants' comments indicate that people believe that the use of such tools in the educational system has allowed people to make use of information resources and come up with original ideas. These have a stimulating influence on students' creativity since they provide a variety of alternative viewpoints and insights on numerous subjects, enabling them to gradually develop complex and logical arguments.

Extract 1: "I didn't know how to write a paragraph or a paper in a conventional writing class."

Extract 2: "I learned how to put my ideas on paper."

Question 3: Do you think that your thinking of writing is transformed after technology use?

According to their answers during the interview, the interviewees gave specific details about how they thought about writing before the prevalence of tech-assisted writing. They discussed how technology influenced their negative feelings and thoughts (i.e., fear of the final product, fear of journal evaluation criteria, and lack of interest in writing) about their writing abilities. The following two instances are the excerpts from the focus-group interviews:

Extract 1: It's not important for me to write a good essay.

Extract 2: All the time, I had the fear of failure, so I couldn't concentrate.

5. Discussion

In the present research, this hypothesis was raised that there was not any significant difference between the EFL learners who attended online peer assessment and those who did not in terms of grammar accuracy of their written discourse at the intermediate level. After analysis of the obtained data, it was clarified that there was a significant difference in the performance of learners in the experimental and control groups on the posttest. The performance of the learners in the experimental group who attended online peer assessment during their English course was significantly better than the learners in the control group who performed face-to-face peer assessment in the same procedure of teaching and learning.

The results of face-to-face focus-group interviews with the learners confirmed that the learners who attended online Wiki-based peer assessment had positive attitudes toward such kind of peer assessment. They claimed that technology has helped create a collaborative atmosphere and a sense of confidence among the learners. They also mentioned that this type of assessment not only improved their grammar accuracy in writing but also motivated them to write more accurately in order not to be corrected by other learners and it made them wiser and more exact in evaluating and assessing each other writings.

Totally, because of the facilitating nature of online peer assessment through Wiki and also the better collaborative environment it offers for such activities, the peer assessment procedure was more successful and productive in the experimental group. Also, since this type of assessment was innovative for language classes, this innovation and interesting environment of Wiki motivated learners to attend more willingly in the process of peer assessment and try to improve their writing in order to contend with their peers in the experimental group. This is in line with the finding of the research done by

Owen et al. (2006) in which he found that using Wiki in English classes has a positive effect on learning. It also confirmed Harris and Zeng's (2008) finding that Wiki is a powerful tool for aiding language learning. Many other abroad research had the same finding in exploring the effects of Wiki and online collaborations on language learning (e.g., Bonk, et.al, 2009; Coutinho & Bottentuit, 2007; Glasser, 2004; Liu et al., 2022; Sula et al., 2021). The findings of the present study were in line with the findings of research done by Ahmadi and Marandi (2014), who reported that Wikis are proper environments for creating, editing, reviewing, tagging, assessing, and commenting for learners, as they had a positive effect on improving learners' language skills. It also corresponds with the findings of Liu et al. (2022), who looked into how Wikis affected the writing abilities of EFL students. They found that the participants gained knowledge, insights, and experience through participating in online Wiki-based collaborative writing.

6. Conclusions and Implications

As McConnell (2002) argued, using online peer assessment activities not only can speed up grading time and provide students with more thoughtful feedback, but also helps students to interact with the teacher and other students without limitation of time and location. The conclusion that could be drawn from the results of quantitative data analysis of the present study and the statements of learners in face-to-face interviews suggested that the application of online Wiki-based peer assessment in EFL classes has positive effects on grammar accuracy in writing by the intermediate-level EFL learners. It was also concluded that the use of online peer assessment is a motivating factor for learners in order to be more precise in their classroom paragraph writing. The important point obtained during the research period and also in interviews was that when peer assessment and especially online peer assessment are accounted for in a classroom activity and assignment, it can be more effective and motivating in comparison to when it is optional. As Owen et.al (2006) claimed, social networking helps students to get together from different locations and share their ideas and works in a rich environment so that they can create a new and informal knowledge structure, the participants of the present study claimed that they had a new experience of learning in a comfortable environment where they were exposed to other students and these factors help them to motivate more and improved their grammar accuracy in writing. Therefore, this point was gained that the novelty of online peer assessment activities in language classes was another motivating factor for its grace for language learners.

The findings of the present study can help material developers, teachers, and learners in the process of language teaching and learning. Firstly, it can be helpful for material developers in the sense that with the important

role of peer assessment in the language learning process especially online one, they can design and develop materials that have online peer assessment activities in their practice parts. Secondly, it informs language teachers about the positive effects of online peer assessment and its superiorities over face-to-face peer assessment in terms of its time-saving and novel nature and also its motivating role in grammar accuracy in writing among learners. Therefore, the teachers can be successful more and decide better if they include this sort of peer assessment in their language teaching courses. Moreover, the inherent flexibility in social software like Wikis promotes autonomy among learners and enables them to adapt to the learning context to satisfy their needs (Kessler & Bikowski, 2010). Finally, this research can motivate learners to form Wiki groups and attend them in order to improve their language proficiency in all dimensions especially in their grammar accuracy in writing.

There were several limitations in the present study that need to be acknowledged. The study was conducted on 28 EFL learners who participated in the research on a voluntary basis. The number of the participants and the nature of participation indicate that the result might not be generalized beyond the context of the study. Furthermore, all learners were female and from the intermediate level. Comparing the male learners in attending and using online peer assessment through wikis and also learners with different proficiency levels can provide more valuable results and findings for readers. Finally, participants' prior familiarity with Wikis and online tools could not be controlled.

References

Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning. *Educause Review*, *41*(2) 33-40. http://www.educause.edu/ir/library/pdf/ERM0621.pdf

Ahmadi, S.D., & Marandi, S.S. (2014). *Social software in the classroom: The case of wikis for scaffolding* [Paper presentation]. International Conference on Current Trends in ELT: Putting the Learner in the Spotlight, Urmia, Iran.

An, X. (2010). User-controllable color transfer. *Computer Ggraphics Forum*, *29*(2), 263-271. doi.org/10.1111/j.1467-8659.2009.01595.x

Beaumont, C., O'Doherty, M.O., & Shannon, L. (2008). *Reconceptualizing assessment* [Paper presentation]. Pedagogical Research in Higher Education Conference, Liverpool, the UK.

Ben-Zvi, D. (2007). Using wiki to promote collaborative learning in statistics education. *Technology Innovations in Statistics Education, 1*(1). https://escholarship.org/uc/item/6jv107c7

Bonk, C. J., Lee, M. M., Kim, N., & Lin, M. G. (2009). The tensions of transformation in three cross institutional wiki book projects. *Internet and Higher Education, 12*, 126-135. doi:10.1016/j.iheduc.2009.04.002

Boulos, M.N.K., Maramba, I., & Wheeler, S. (2006). Wikis, blogs and podcasts: A new generation of Web based tools for virtual collaborative clinical practice and education, *BMC Medical Education*, *6*(41). http://www.biomedcentral.com/content/pdf/1472-6920-6-41.pdf

Bragg, A.B. (2007). Reflections on pedagogy: Reframing practice to foster informal learning with social software. http://matchsz.inf.elte.hu/TT/docs/Anne20Bartlett- Bragg.pdf

Brown, H.D., Brown, H., & Abeywickrama, P. (2018). *Language assessment: Principles and classroom practices*. Pearson.

Butler, S.A., & Hodge, S.R. (2001). Enhancing student trust through peer assessment in physical education, *Physical Educator*, *58*, 30–41.

Chan, C.K.K., & van Aalst, J. (2004). Learning, assessment and collaboration in computersupported environments. In P. Dillenbourg, J. W. Strijbos, P. A. Kirschner & R. L. Martens (Eds.), *Computer-supported collaborative learning* (Vol. 3, pp. 87-112). Kluwer Academic Publishers.

Chao, Y., & Lo, H. (2009). Students' perceptions of Wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environments*, *19*, 395–411. doi:10.1080/10494820903298662.

Cheng, W., & Warren, M. (2000) Making a difference: Using peers to assess individual students' contributions to a group project, *Teaching in Higher Education*, *5*(2), 243-255, doi:10.1080/135625100114885

Coutinho, C.P., & Bottentuit, J.B.Jr. (2007). *Collaborative learning using wiki: A pilot study with master students in educational technology in Portugal* [Paper presentation]. World Conference on Educational Multimedia, Hypermedia and Telecommunications (ED-MEDIA), Vancouver, Canada.

Davies, P. (2000). Computerized peer assessment. *Innovations in Education and Training International*, *37*(4), 346-355. doi:10.1080/135580000750052955

Deters, F., Cuthrell, K., & Stapleton, J. (2010). Why wikis? Student perceptions of using wikis in online coursework. *MERLOT Journal of Online Learning and Teaching*, *6*(1), 122-134.

Diaz-Negrillo, A. (2009). *EARS: A user's manual*. LINCOM Academic Reference Books.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative-learning: Cognitive and computational Approaches* (pp.1-16). Elsevier.

Double, K., McGrane, J. A., & Hopfenbeck, T. N. (2020). The impact of peer assessment on academic performance: A metaanalysis of control group studies. *Educational Psychology Review, 32*, 481–509. doi:10.1007/s10648-019-09510-3

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative and mixed methodologies*. Oxford University Press.

Educause Learning Initiative. (2005). 7 things you should know about wikis. http://net.educause.edu/ir/library/pdf/ELI7004.pdf

Elgort, I., Smith, A. G., & Toland, J. (2008). Is wiki an effective platform for group course work? *Australasian Journal of Educational Technology, 24*(2), 195-210.

Engstrom, M. E., & Jewett, D. (2005). Collaborative learning the wiki way. *TechTrends, 49*(6), 12–15. doi:10.1007/BF02763725

Falchikov, N. (1995). Peer feedback marking: Developing peer assessment', *Innovations in Education and Teaching International*, *32*, 175–187. doi:10.2304/plat.2003.3.2.1

Gielen, M., & De Wever, B. (2012). Peer assessment in a wiki: Product improvement, students' learning and perception regarding peer feedback. *Social and Behavioral Sciences, 69*, 585 – 594.

Harris, S., & Zeng, X. (2008). Using wiki in an online record documentation systems course. *Perspectives in Health Information Management 5*(1), http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2242345

Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer mediated language learning: Attention to meaning among students in wiki space. *Computer-Assisted Language Learning, 23*(1), 41-58. doi:10.1080/09588220903467335

Lamb, B. (2004). Wide open spaces: Wikis, ready or not. *EDUCAUSE Review, 39*(5), 36-48.

LeMare, L.J., & Rubin, K.H. (1987). Perspective taking and peer interaction: Structural and developmental analysis. *Child Development, 58*, 306–315. doi:10.2307/1130508

Leuf, B., & Cunningham, W. (2001). *The wiki way: Quick collaboration on the Web.* Addison Wesley.

Li, J., & Cumming, A. (2001). Word processing and second language writing: A longitudinal case study. *International Journal of English studies, 1*(2), 127–152.

Li, M. (2012). Use of wikis in second/foreign language classes: A literature review. *CALL-EJ*, 13, 17–35.

Lin, W. C., & Yang, S. C. (2011). Exploring students' perceptions of integrating Wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique, 10*, 88-103.

Liu, P.-L., Ginting, A. M. G., Chen, C.-J., & Yeh, H.-C. (2022). Students' performance and perceptions of Wiki-based collaborative writing for learners of English as a foreign language. *Sage Open*, *12*(4). doi:10.1177/21582440221144953

Lund, A. (2008). Wikis: A collective approach to language production. *ReCALL Journal, 20*(1), 35–54. doi:10.1017/S0958344008000414

Macdonald, J. (2002). Assessing online collaborative learning: Process and product. *Computers and Education, 40*, 377-391. doi:10.1016/S0360-1315(02)00168-9

Matthew, K. I., & Callaway, R. A. (2009). Wiki as a collaborative learning tool in a language arts methods class. *Journal of Research on Technology in Education, 42*, 51–72. doi:10.1080/15391523.2009

McConnell, D. (2002). The experience of collaborative assessment in E-learning, *Studies in Continuing Education*, *24*, 73–102.

O'Shea, P.M., Baker, P.B., Allen, D.W., Curry-Corcoran, D.E., & Allen, D.B. (2006). New levels of student participatory learning: A Wiki Text for the Introductory Course in Education. *Journal of Interactive Online Learning, 6*(3), 227-244.

Owen, M., Grant, L., Sayers, S., & Facer, K. (2006). Opening education: Social software and learning. Futurelab. http://www.futurelab.org.uk/research

Parker, K., & J. Chao. (2007). Wiki as a teaching tool. *Interdisciplinary Journal of Knowledge and Learning Objects, 3*, 57–72. doi:10.28945/3131

Prins, F. J., Sluijsmans, D. M. A, Kirschner, P. A., & Strijbos, J. W. (2005). Formative peer assessment in a CSCL environment: A case study. *Assessment and Evaluation in Higher Education, 30,* 417- 444.

Sadler, D. R. (1998). Formative assessment: Revisiting the territory, *Assessment in Education, 5*(1), 77–84.

Schunemann, N., Sporer, N., Vollinger, V. A., & Brunstein, J. C. (2017). Peer feedback mediates the impact of self-regulation procedures on strategy use and reading comprehension in reciprocal teaching groups. *Instructional Science,* 45(4), 395–415. doi:10.1007/s11251-017-9409-1

Scouller, K. (1998). The influence of assessment method on students' learning approaches: Multiple choice question examination versus assignment essay, *Higher Education,* 35, 453–472. doi:10.1023/A:1003196224280

Soars, J., & Soars, L. (2014). *American headway three*: *Student edition* (2nd ed.). Oxford University Press.

Strijbos, J. W., & Sluijsmans, D. (2010). Unravelling peer assessment: Methodological, functional, and conceptual developments. *Learning and Instruction, 20*(4), 265-269.

Sula, G., Haxhihyseeni, S., & Noti, K. (2021). Wikis as a tool for co-constructed learning in higher education – An exploratory study in an Albanian higher education. *International Journal of Emerging Technologies in Learning, 16*(24), 191-204. doi:10.3991/ijet.v16i24.26541

Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *Modern Language Journal, 82*(3), 320–337.

Topping, K. (1998), Peer assessment between students in colleges and universities, *American Educational Research Association, 68*(3), 249-276. doi:0.3102/00346543068003249

Topping, K. (2003). Self and peer assessment in school and university: Reliability, validity and utility. In M. Segers, F. Dochy, & E. Cascallar (Eds.), *Optimising new modes of assessment: In search of qualities and standards* (pp. 55–87). Kluwer Academic Publishers.

Topping, K.J., Smith, E.F., Swanson, I., & Elliot, A. (2000). Formative peer assessment of academic writing between postgraduate students. *Assessment & Evaluation in Higher Education, 25(2),* 149-166. doi:10.1080/713611428

Vassell, C., Amin, N., & Winch, S. (2008). *Evaluating the use of wikis in student group work with BlackBoard VLE* [Paper presentation]. Proceedings of 9th Annual conference of the Higher Education Academy Information and Computer Sciences Conference, Liverpool, the UK.

Vygotsky, L.S. (1978). *Mind in society.* Harvard University Press.

Warschauer, M. (1996). Comparing face-to-face and electronic communication in the second language classroom. *CALICO Journal, 13,* 7-26. doi:10.1558/cj.v13i2-3.7-26

Yarrow, F., & Topping, K. J. (2001). Collaborative writing: The effects of metacognitive prompting and structured peer interaction. *British Journal of Educational Psychology, 71*, 261–282. doi:10.1348/000709901158514

Zamora, A., Suarez, J. M., & Ardura, D. (2018). Error detection and self-assessment as mechanisms to promote self-regulation of learning among secondary education students. *The Journal of Educational Research*, *111*(2), 175–185. doi:10.1080/00220671.2016.1225657