



The Impact of Online Teacher's Mediation and Learners' Scaffolding on the EFL Learners' Depth of Reflectivity in Writing

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ABSTRACT

The present quasi-experimental study aimed to explore the involvement of Iranian English as a foreign language (EFL) learners in reflective thinking and investigate the differential effects of teacher mediation, learners' scaffolding, and a control group on learners' reflectivity in writing. To do so, a convenience sample of 97 EFL learners (63 female and 34 male) from a private language academy participated in the study. Participants' proficiency levels were determined using the DIALANG test to ensure homogeneity. The assessment of EFL learners' reflection on writing was conducted using the Reflection on Writing Questionnaire (RWQ). Following the administration of the RWQ as a post-test, participants completed a timed writing task to measure their reflectivity. Descriptive and inferential statistics, including one-sample t-tests and repeated measures ANOVA, were employed to analyze the data. The normality distribution of the data was confirmed using the Kolmogorov-Smirnov Test. A coding scheme was implemented to categorize the levels of reflection in the learners' essays. The findings demonstrate that the learners' scaffolding group exhibited a significantly higher level of understanding and reflection, surpassing both the experimental group 1 and the control group. Assuming that learners are allowed the opportunity to compose portfolios early even in their school years, they will have a great deal of time to further develop their abilities to write and show their achievements. Furthermore, statistically significant progress in reflection and its dimensions was observed only in the learners' scaffolding group, while the first experimental group showed progress that was not statistically significant. This study supports a sociocultural perspective on language learning, which views collaborative interactions as a significant source of learning, theoretically. More importantly, it adds to previous efforts to transform the expert/novice relationship into a collaborative one by incorporating sociocultural scaffolding and the ZPD. Still, regarding the findings of the present study, reflectivity and reflective thinking do not develop overnight, and they need constancy and long-term attempts.

KEYWORDS: EFL Learners; Learner Scaffolding; Reflectivity; Teacher Mediation

INTRODUCTION

Sociocultural Theory (SCT), developed by Vygotsky and Cole (1978) highlights the role of tools and sign systems in mediating human activity, with language as a crucial mediator. Language, however, is not a static entity; it evolves in conjunction with cultural development and historical changes, making it inseparable from its social context. In the field of English Language Teaching (ELT), the concept of scaffolding, as described by Van de Pol, Volman, and Beishuizen (2010), focuses on providing customized support to students by teachers or more capable peers to foster student autonomy. The gradual transfer of learning responsibility from instructors to learners is particularly significant in ELT (Lin et al., 2012).

Numerous concepts derived from Sociocultural Theory have been extensively explored in the context of second language acquisition (SLA). Among these, the zone of proximal development (ZPD), peer interaction, and scaffolding are interrelated under the broader term of "mediation" (Guerrero Nieto, 2007). Reflective thinking, initially introduced by Dewey (1933), entails active problem-solving through the thoughtful arrangement and progression of ideas. Its



influence on the learning process is widely acknowledged (Asakereh & Yousofi, 2018), as reflective thinkers demonstrate awareness of their learning, continuously monitor their existing knowledge, and understand how to connect it with new knowledge (Darling-Hammond et al., 2020). This type of thinking involves processes such as hypothesis formation, reasoning, and testing (Loughran, 1996), often manifested in reflective writing.

Despite its importance, writing often receives inadequate attention in second language education settings. In conventional courses of EFL writing, the learners are not trained to think reflectively in the process of knowledge transmission. As Avarzamani & Farahian (2019) state, most learners are unaware of the cognitive operation behind constructing a text. As a result of this lack of awareness, no reflection or understanding happens while producing a text. The learners just reproduce others' works or write fixed sets of sentences they have read before. Additionally, it is believed that various cognitive and linguistic strategies can improve EFL learners' awareness of their writing and improve their practice to meet their needs of learning (Avarzamani & Farahian, 2019). Although, studies in the past decade have shown an increase in the study of reflective practices in EFL context, especially in Iran, more careful studies need to be done. Due to its significance, writing should receive adequate attention in second language education settings, prompting researchers to explore various strategies for effective writing instruction. Scaffolding and mediation, in which teachers and peers provide support and guidance, have been identified as effective approaches. For instance, studies by Piamsai (2020) and Khojasteh, Hosseini, and Nasiri (2021) have shown the positive impact of scaffolding on the writing performance of non-proficient EFL learners, resulting in significant improvements across various aspects of writing competence. Fathi and Rahimi (2022) have investigated the effects of flipped classrooms on EFL students' writing performance, providing valuable insights into EFL writing instruction.

However, despite previous research exploring the effects of scaffolding and mediation on writing performance, there is a gap in the literature regarding the implementation of online teacher mediation and learners' scaffolding, particularly in relation to reflective thinking in writing. Therefore, this study aims to address this gap by examining how online teacher mediation and learners' scaffolding influence reflective thinking among EFL learners in their writing. Understanding the impact of these practices on reflectivity could contribute to more effective teaching methodologies and enhance the overall quality of EFL writing instruction.

PURPOSE OF THE STUDY

Given the above-mentioned issues, this study had two main objectives. First, it inquired about the level of reflection EFL learners are involved in. Second, it compared the performance of the three groups of experimental 1 (teacher mediation), experimental 2 (learners' scaffolding) and the control group (conventional method) to check which one outperforms others in learners' reflectivity in writing. In accordance with this, the following research questions were formulated:

RQ1. How does the level of reflection demonstrated by EFL learners in writing change as a result of the online teacher mediation and learners' scaffolding intervention in the three groups of the study?

RQ2. What is the impact of the online teacher mediation and learners' scaffolding intervention on the level of learners' reflectivity in writing, as measured among the three groups of the study?

REVIEW OF THE RELATED LITERATURE

Writing is an essential and educational skill with numerous advantages for learners in educational settings (Genç-Ersoy & Göl-Dede, 2022). It may be said that success in self-expression, communication, academic areas, and various other fields depends on the mastery of this skill (Lv et al., 2021). In an EFL setting, writing goes beyond mere communication as it has the potential to facilitate FL learning, making it a crucial aspect of language education (Brown et al., 2023). However, despite the significance it deserves in EFL classrooms and the paramount importance of it for learners' achievements, writing skill is often not given the attention it deserves in EFL classrooms. (Hassen et al., 2023).

Accordingly, researchers are expected to offer their valuable research insights regarding the nature of this complex skill and explore the EFL learners' thinking processes underlying the skill. It should be noted that for a long time, writing was thought to be a product-oriented skill and a high value has been placed on the ultimate product. Under the influence of the product-oriented approach, mechanical aspects of writing were valued, correctness was



greatly prized, and mistakes were not tolerated. However, under the influence of cognitivism, experiential learning (Gold, Hobbs, & Berlin, 2012) received a strong emphasis (Bhat, Zhang, & Mohanty, 2007). According to Hairston (1982) there has been a change in perspective in composition theory, with a move toward process-oriented theories of writing. As Hairston states, in the new paradigm, writing is thought of as a recursive rather than a linear process, students are hoped to master writing skills, and teachers are aware of and monitor the writing process. Meanwhile, higher-order thinking processes such as metacognition, critical thinking, and reflective thinking are receiving more attention. The significance of e-learning cannot be undermined, since it has become a global phenomenon in the field of pedagogy. In recent years, there has been growing interest in using technology in educational settings, and the usage of various technical instruments in education, such as computers, laptops, and digital cameras, has had a significant impact on both teaching and learning (Schindler, Burkholder, Morad, & Marsh, 2017). Improving the process of teaching and learning through using technology is one technique to address training obstacles (Shohel & Kirkwood, 2012). As a result, teachers are expected to be able to use and benefit from the institution's e-resources.

Under the influence of the COVID-19 pandemic and the closure of educational settings such as schools, institutions, and universities around the world, a closer glance at online learning appears to be more important than ever. Despite the earlier widespread use of social media in the country and the integration of new technologies into the educational system before the crisis of COVID-19, the new e-learning opportunity has been dubbed "emergency e-learning." Emergency e-learning, as defined by Hodges, Moore, Lockee, Trust, and Bond (2020), is "the temporary move of instructional delivery to an alternate delivery mode due to emergency situations" (p. 6). The difficulty of managing this crisis, the absence of relevant experience (Teymori and Fardin, 2020), as well as the limitation imposed by emergency e-learning, provided fertile ground for inventiveness and diverse creativities.

The Learning Management System (LMS) as a platform for online learning (Ebadi, Khazaie, and Bashiri, 2020) is one of the systems that has been implemented at state and private colleges and universities across the country. The platform was first presented to the Iranian educational system in 1990 in its most basic version (Mahmoudi-Dehaki, Chalak, & Heidari Tabrizi, 2021). Iranian universities set up LMS systems to integrate and improve the quality of distance and online education. Under the COVID-19 duress, they have updated and upgraded their electronic infrastructure and systems with a large number of students and educational units distributed around the country and in different locations to facilitate educational interactions. The researchers believe that in such a condition, there is a need to pay more serious attention to students' higher-order thinking and especially their reflective thinking which might have been affected by the distance from the educational context. Furthermore, it seems essential to reconsider the impact of teacher mediation and peer scaffolding on students' writing achievement. Having such a purpose in mind, the researchers explored the impact of online teacher mediation and learners' scaffolding on the EFL learners' depth of reflectivity and writing ability.

The present study is of significance in the field of English Language Teaching for different reasons: The results of the study may turn out to be significant because, as the related literature indicates, reflective thinking is of great significance in English as a Foreign Language, since reflection, is a kind of problem-solving activity that involves "active chaining, a structured arrangement of ideas connecting each to its predecessors" (Hatton & Smith, 1995, p.131). It is also believed that success in learning to a great extent depends on reflective thinking (Asakereh & Yousofi, 2018). So, it is of great significance to understand the factors that affect reflection in Foreign Language (FL) learning, especially for writing in FL. The findings can highlight the impact of reflective thinking on writing outcomes, too. To be more specific, the results may indicate that teachers' mediation and learners' scaffolding may act differently affecting EFL writing, since EFL writers may benefit differently from teachers' mediation and peers' scaffolding.

METODOLOGY DESIGN

The present study employed a quasi-experimental design since it was not possible to do a randomized, controlled trial study (Ary, Jacobs, Irvine, & Walker, 2019). The quantitative data were collected through the Reflection on Writing Questionnaire and Timed-Writing Tasks and then were analyzed using descriptive and inferential statistics.

PARTICIPANTS



To select the participants, convenience sampling was used in the study. Based on convenience sampling, the researcher selected those participants who were available and willing to participate in the study (Creswell, 2011). The participants in the study were 97 EFL learners (63 female and 34 male) studying at one of the branches of Safir Language Academy in Khorramabad, Iran. The range of the participants' age was between 16 and 26. The DIALANG test, a free online assessment system, was utilized to determine individuals' levels of proficiency and to confirm the homogeneity of the participants. The DIALANG test assesses all language skills and the results are reported in levels from A1 to C2. The findings of the test for the participants of the present study illustrated that they were either at the B1 or B2 level. The participants did not have experience using Google Docs for learning or collaborative writing.

MATERIALS AND INSTRUMENTS

DIALANG

DIALANG which is available at <http://dialangweb.lancaster.ac.uk> is a free online assessment system. The test provides information about learners' linguistic proficiency and shows a review of the responses to the items and full feedback indicating how well they have performed. DIALANG determines test takers' language proficiency levels based on the levels introduced by the Common European Framework of Reference for Languages. The DIALANG test assesses all language skills namely reading, writing, listening, spoken production, and spoken interaction. The test results are reported in levels from A1 to C2.

REFLECTION ON WRITING QUESTIONNAIRE (RWQ)

To assess EFL learners' reflection on the writing, the researcher employed the scale developed by (Avarzamani & Farahian, 2019). The RWQ scale aims to examine whether EFL learners critically evaluate given experiences and relate those to their own, and when they can express their thoughts about their experiences, they analyze and evaluate the given topics. Different levels of reflection determined by RWQ include Habitual Action (non-reflection), Understanding, Reflection, and Critical Reflection (the highest level of reflection). This scale contains 19 items including 4 questions for habitual action, 4 questions for understanding, 5 for reflection and 6 for critical reflection to find out whether learners engage in reflective thinking while writing. This 5-point Likert scale was employed where 1 indicated "not at all", 2 "to a small scale", 3 "to some extent", 4 "to a moderate extent, and 5 "to a great extent". The Cronbach's α of the scale is 0.82, which seems fair.

TIMED-WRITING TASK

Apart from the RWQ questionnaire, a 45-minute timed-writing task was given to the participants to measure their reflectivity on writing by means of a coding scheme developed by Kember et al. (2000). This is a four – category scheme which focuses specifically on levels of reflection in writing. The reliability and validity of this scheme are known to be established, so was found valuable for the evaluation of the text composed by EFL learners. The given writing task was used to enable learners to relate their self - reports to specific tasks and researchers to analyze the texts. Accordingly, the participants of the three groups were asked to write about a general topic ("Do you think that social media has changed people's lives?") that did not require any specific background knowledge. This topic was chosen because it was taught to encourage learners to write reflectively.

PROCEDURE

The present study was managed in Iran during the 2022 academic year. The same teacher taught all groups and employed the same curriculum and materials. The writing course lasted for fourteen weeks and during the term, the learners were asked to write 10 essays and hand them to their teacher. As the first step, all participants took the DIALANG Test. As the next step, all three classes were given the RWQ questionnaire. As for the control group, the teacher followed conventional teaching of writing skills. In this class, different sections of an essay were explained to the students. Then, interesting topics with the cooperation of the learners were chosen and they were asked to write a short essay and send them to the teacher's email. For both experimental groups, the teacher provided step-by-step instructions on how to use Google Docs. Since the EFL learners did not know how Google Docs could be used for writing and editing, two short videos were displayed by the teacher presenting detailed instructions on Google Docs. The teacher created Google Docs for the participants of both experimental groups. In addition, Gmail accounts were used to share the documents.



Based on Walqui (2006) who proposed six scaffolding strategies for effective teaching, namely, modeling, bridging, contextualizing, schema building, representing text, and developing metacognition, the teacher provided the first experimental group (teacher mediation) with appropriate scaffolding. As for the second experimental group (learner scaffolding) at the outset of the study, a timed writing task was used to enable the researcher to compare learners' writing performance to determine the competency of the writers in the second experimental group. The objective was to pair more competent writers with less competent ones. To give instructions on peer editing and scaffolding, the participants were asked to watch a sample video in which an experienced teacher went through the process of peer-editing and scaffolding a sample written text. Furthermore, the teacher provided the participants of the second experimental group with detailed explanations of writing components namely, organization, content, vocabulary, mechanics, and language use. Outside of the classroom, the learners were asked to provide feedback and modify their peers' writing assignments in groups using Google Docs. They were also instructed to edit their peers' written work regularly, paying attention to content, structure, language use, vocabulary, and mechanics. More specifically, the participants were expected to write the first draft and then share it with their peers on Google Docs, where they were peer-edited or given feedback. Then, they corrected their work and produced a third draft, on which their peers and teacher provided additional feedback and edits until the final draft was completed. In the last session, all groups received the RWQ questionnaire and were asked to write the last essay.

DATA ANALYSIS

To explore the research questions in the present study, in the first place, both descriptive and inferential statistics were run. As such, means and standard deviations were drawn upon. In addition, KR21 and Cronbach's Alpha were utilized for reliability. Furthermore, to ensure the normality distribution of the data set Kolmogorov-Smirnov Test was conducted. To answer the first research question, a one-sample t-test and descriptive analysis were used, and to answer the second research question, we used repeated measures of ANOVA.

To consolidate the findings of the research question, a coding scheme was used since it was assumed that besides the questionnaire used in the study, the coding scheme could specify levels of reflection in the students' essays. Accordingly, one of the four groups of habit, understanding, reflection, and critical reflection suggested by Kember et al. (2000) was assigned to all sentences produced by the participants of the three groups in their final essay. To ensure reliability in the coding assigned by the researcher ten papers were chosen, each of which had received a grade between A to D. Then, two academic coworkers were invited to assign a mark for each paper using the four categories described by Kember et al. Then the results were compared with those scored by the researcher

RESULTS

PRELIMINARY ANALYSES

DESCRIPTIVE STATISTICS

RELIABILITY

Cronbach's Alpha procedure was performed to measure the reliability of the questionnaire. This test affirms the internal consistency of a measurement device used to assess various questionnaire characteristics. The Cronbach's Alpha coefficient is a numerical value between 0 and 1, representing the correlation coefficient of data collected over time. The closer Cronbach's Alpha coefficient is to 1, the higher the reliability of the variables would be. Additionally, a Cronbach's Alpha coefficient greater than 0.7 illustrates that the questionnaire is highly reliable. Table 1 reports the results of the Cronbach's Alpha test.

Table 1
Results of the Cronbach's Alpha Coefficient for the Reflection's Components

Groups	Groups	Cronbach's alpha ($\alpha > 0.7$)	N	Items
Pre-test	H Ctrl	.750	31	4



	Exp1	.766	34	
	Exp2	.722	32	
	Total	.735	97	
	Ctrl	.743	31	
U	Exp1	.810	34	5
	Exp2	.657	32	
	Total	.741	97	
	Ctrl	.742	31	
R	Exp1	.746	34	6
	Exp2	.627	32	
	Total	.705	97	
	Ctrl	.755	31	
CR	Exp1	.718	34	4
	Exp2	.675	32	
	Total	.695	97	
	Ctrl	.698	31	
Reflection	Exp1	.882	34	19
	Exp2	.709	32	
	Total	.784	97	
	Ctrl	.889	31	
H	Exp1	.770	34	4
	Exp2	.922	32	
	Total	.882	97	
	Ctrl	.845	31	
U	Exp1	.898	34	5
	Exp2	.894	32	
	Total	.882	97	
	Ctrl	.686	31	
R	Ctrl	.686	31	6



	Exp1	.614	34	
	Exp2	.834	32	
	Total	.865	97	
	Ctrl	.700	31	
CR	Exp1	.718	34	4
	Exp2	.813	32	
	Total	.776	97	
	Ctrl	.729	31	
Reflection	Exp1	.765	34	19
	Exp2	.840	32	
	Total	.870	97	
	Ctrl	.729	31	

*Tip: H (habitual action), U (understanding), R (Reflection), CR (Critical Reflection)

As shown in Table 1, Cronbach’s Alpha coefficient for the reflection’s components is greater than 0.6, signifying that each structure is sufficiently reliable.

Calculating the normality of data is essential for many statistical tests since normal data is a basic assumption in parametric testing. Hence, the Kolmogorov-Smirnov test was used to see if the data in this study was normal for three “Control” and “Experimental 1” & “Experimental 2” groups. The results of the Kolmogorov-Smirnov test proved that all significance values in the three “Control” and “Experimental1” & “Experimental2” groups for research variables are more than 0.05 (Sig.>.05). Since the significance values for the normality test were significantly more than the predetermined 0.05, it can be claimed that the data collected from the test had normal distributions.

At the beginning of the study before considering the research questions, a pretest in terms of Reflections’ components was taken from EFL students in the three groups of “Control”, “Experimental 1” and “Experimental 2”. A One-Way ANOVA was used to confirm the homogeneity of the three groups (Ctrl. Exp. 1, & Exp. 2) at the beginning of the research. The descriptive results of the pretest scores are shown in Table 2.

Assumption of One-Way ANOVA Test
H₀: Sig. ≥ 0.5 ; μ₁ = μ₂ = μ₃
H₁: Sig. < 0.5 ; μ₁ ≠ μ₂ ≠ μ₃

Table 2
Descriptive Statistics of Reflections’ Components in Control and Experimental Groups in Terms of Homogeneity in Pretest

Variables	Sum of Squares	df	Mean Square	F	Sig.
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		Between Groups	.004	2	.002	.005	.995
	H	Within Groups	37.598	94	.400		
		Total	37.602	96			
		Between Groups	.027	2	.014	.042	.959
	U	Within Groups	30.504	94	.325		
		Total	30.531	96			
		Between Groups	.030	2	.015	.130	.878
Pretest	R	Within Groups	10.921	94	.116		
		Total	10.951	96			
		Between Groups	.046	2	.023	.056	.945
	CR	Within Groups	38.334	94	.408		
		Total	38.380	96			
		Between Groups	.002	2	.001	.008	.992
	Reflection	Within Groups	11.166	94	.119		
		Total	11.168	96			

According to the obtained results in Table 2, the significant value of the analysis of variance test for all research variables is greater than 0.05, so the H0 hypothesis cannot be rejected, and the result suggests that the three groups were homogeneous in terms of the four variables of Reflection and no significant difference was observed between groups in the pretest. In the following, the research questions will be examined.

To examine the question that explored the level of reflection of the EFL learners of the three groups involved in a comparison of the means from the test value=3 within control and experimental groups in pre and post-test by a One-Sample T-Test was performed. The results are shown in Table 3.

Assumption of One-Sample T-Test

H₀: Sig. ≥ 0.5 ; μ = 3

H₁: Sig. < 0.5 ; μ ≠ 3

Table 3
Results of One-Sample T-Test in Control and Experimental Groups

Test Value = 3						
Groups	Group s	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference



					Lower	Upper		
Pre-test	H	Ctrl	-8.575	30	.000	-.98387	-1.2182	-.7496
		Exp1	-10.483	33	.000	-.99265	-1.1853	-.8000
		Exp2	-7.865	31	.000	-.97656	-1.2298	-.7233
	U	Ctrl	-12.271	30	.000	-1.25806	-1.4674	-1.0487
		Exp1	-11.721	33	.000	-1.21765	-1.4290	-1.0063
		Exp2	-13.343	31	.000	-1.24375	-1.4339	-1.0536
	R	Ctrl	-27.074	30	.000	-1.59140	-1.7114	-1.4714
		Exp1	-24.632	33	.000	-1.55882	-1.6876	-1.4301
		Exp2	-28.089	31	.000	-1.59896	-1.7151	-1.4829
	CR	Ctrl	-11.360	30	.000	-1.15323	-1.3606	-.9459
		Exp1	-12.613	33	.000	-1.19118	-1.3833	-.9990
		Exp2	-8.298	31	.000	-1.14063	-1.4210	-.8603
Reflection	Ctrl	-25.166	30	.000	-1.28353	-1.3877	-1.1794	
	Exp1	-18.653	33	.000	-1.27245	-1.4112	-1.1337	
	Exp2	-21.439	31	.000	-1.27796	-1.3995	-1.1564	
H	Ctrl	-7.871	30	.000	-.97581	-1.2290	-.7226	
	Exp1	-3.263	33	.003	-.44118	-.7162	-.1661	
	Exp2	-2.192	31	.036	-.50000	-.9653	-.0347	
U	Ctrl	-9.740	30	.000	-1.25161	-1.5141	-.9892	
	Exp1	-6.960	33	.000	-.96471	-1.2467	-.6827	
	Exp2	-.572	31	.571	-.10000	-.4566	.2566	
R	Ctrl	-25.045	30	.000	-1.56989	-1.6979	-1.4419	
	Exp1	-12.100	33	.000	-1.28431	-1.5003	-1.0684	
	Exp2	.045	31	.965	.01042	-.4666	.4875	
CR	Ctrl	-10.605	30	.000	-1.18548	-1.4138	-.9572	
	Exp1	-4.798	33	.000	-.65441	-.9319	-.3769	
	Exp2	-2.097	31	.044	-.33594	-.6626	-.0093	



	Ctrl	-26.277	30	.000	-1.28014	-1.3796	-1.1806
Reflection	Exp1	-11.504	33	.000	-.89009	-1.0475	-.7327
	Exp2	-1.536	31	.135	-.19901	-.4633	.0653

The results of Table 3 show that only the significance level of U, R, and Reflection variables in the post-test in Experimental Group 2 is more than 0.05. This means that in these three cases, the assumption of zero is confirmed and the mean is not significantly different from the “Test Value = 3”, but in the rest of the cases where the significance level is less than 0.05, the assumption of one is confirmed, which means that the mean is different from the “Test Value = 3”. To determine whether the means are greater, smaller, or equal compared to the “Test Value = 3”, we pay attention to the sign of the “confidence interval of the difference” stated in the two columns of the lower limit and the upper limit, separately for the following three situations:

- (1) The positiveness of both limits indicates that the value of the means is greater than the “Test Value = 3”.
 - (2) The negativity of both limits indicates that the value of the means is lower than the “Test Value = 3”.
 - (3) The positiveness of one and the negativeness of the other indicate that the mean is close to the “Test Value = 3”.
- Meanwhile, the average results are shown in Table 6.

Table 4
Descriptive Statistics of Control and Experimental Groups in One-Sample T-Test

Groups	Groups	N	Mean	Std. Deviation	Std. Error Mean	
Pre-test	Ctrl	31	2.0161	.63880	.11473	
	H	Exp1	34	2.0074	.55215	.09469
		Exp2	32	2.0234	.70241	.12417
	U	Ctrl	31	1.7419	.57083	.10252
		Exp1	34	1.7824	.60577	.10389
		Exp2	32	1.7563	.52728	.09321
Pre-test	R	Ctrl	31	1.4086	.32727	.05878
		Exp1	34	1.4412	.36901	.06328
		Exp2	32	1.4010	.32201	.05692
	CR	Ctrl	31	1.8468	.56523	.10152
		Exp1	34	1.8088	.55068	.09444
		Exp2	32	1.8594	.77755	.13745
Reflection	Ctrl	31	1.7165	.28398	.05100	
	Exp1	34	1.7276	.39778	.06822	



		Exp2	32	1.7220	.33720	.05961
		Ctrl	31	2.0242	.69027	.12398
	H	Exp1	34	2.5588	.78831	.13519
		Exp2	32	2.5000	1.29047	.22813
		Ctrl	31	1.7484	.71548	.12850
	U	Exp1	34	2.0353	.80825	.13861
		Exp2	32	2.9000	.98897	.17483
		Ctrl	31	1.4301	.34900	.06268
Post-test	R	Exp1	34	1.7157	.61891	.10614
		Exp2	32	3.0104	1.32317	.23391
		Ctrl	31	1.8145	.62239	.11178
	CR	Exp1	34	2.3456	.79538	.13641
		Exp2	32	2.6641	.90609	.16018
		Ctrl	31	1.7199	.27124	.04872
	Reflection	Exp1	34	2.1099	.45115	.07737
		Exp2	32	2.8010	.73304	.12958

The findings of the analysis of the essay were to some extent in line with what was found above. Table 5 shows the level of reflective thinking in all participants. According to this Table, the reflective thinking of all the students was at the level of habit and understanding showing the highest average with an average of 6. Meanwhile, reflection, especially critical reflection, has a low average with an average of 5 and 3. So, in general, it can be said that the level of reflective thinking among the participants is low.

Table 5
The Average Scores of Reflective Thinking and its Subcategories in Students

Level of Reflective Thinking	Average	SD
Habit	6.00	1.14
Understanding	8.00	2.28
Reflection	5.00	1.18
Critical Reflection	3.00	1.33



To examine the question that inquired which of the three groups of experimental 1, experimental 2, and the control group outperform the others in students' reflectivity in writing, a comparison of the means of the pre and post-tests of three groups (Control, Experimental 1, & Experimental 2) in terms of 4 components of reflection MANOVA and MANCOVA was performed.

Before carrying out covariance analysis, the condition of non-interaction between the independent variable (group) and covariate (pre-test) with the dependent variable (post-test) should be checked. This is done to check the same slope of the regression line. Also, in this type of analysis, the assumptions of Levin's test for the homogeneity of the variance of the two groups should be observed in the post-test stage, so that the results can be confirmed and the covariance analysis can be performed. The results are shown in Tables 6, 7, and 8.

- Presuppositions of analysis of covariance test
- Examining homogeneity of Covariance Matrix

Assumption of Box's M Test

H₀: Sig. ≥ 0.5 ; Covariance matrix are homogeneous

H₁: Sig. < 0.5 ; Covariance matrix are not homogeneous

Table 6

The Results of Box's M Test in Examining the Assumption of Equality of Covariance Matrix for the Reflection's Components

Statistic	F	df1	df2	Sig.
103.622	.861	20	31341.110	.363

As Table 6 shows, since Sig. was more than 0.05 in this test, the null hypothesis is accepted and this means that the equality of the observed covariance matrix of research variables (i.e., reflection components) among different independent groups was confirmed.

- Examining homogeneity of Variance

Assumption of Levene's Test

H₀: Sig. ≥ 0.5 ; The error variances of the groups are equal

H₁: Sig. < 0.5 ; The error variances of the groups are not equal

Table 7

The Results of Levene's Test in Examining the Assumption of Equality of Variances for the Reflection's Components

Variables	F	df1	df2	Sig.
H	1.817	2	94	.168
U	.431	2	94	.651



R	.353	2	94	.703
CR	1.173	2	94	.120
Reflection	1.828	2	94	.166

According to the results of Table 7, since Sig. was more than 0.05 in all variables, the null hypothesis is accepted and this means that the variances of the errors in all variables are equal.

- Examining the homogeneity condition of the slope of the regression line

Assumption of Interaction Test
H₀: Sig. ≥ 0.5 ; The slopes of the regression line are homogeneous
H₁: Sig. < 0.5 ; The slopes of the regression line are not homogeneous

Table 8
Interaction Test between the Independent Variable (Group) and Covariate (Pre-Test) with the Dependent Variable (Post-Test) of Reflection and its Components

Dependent Variable	Source of changes	Type III Sum of Squares	df	Mean Square	F	Sig.
H	The interaction effect of pre-test and group	3.550	3	1.183	1.409	.246
U	The interaction effect of pre-test and group	2.761	3	.920	1.343	.266
R	The interaction effect of pre-test and group	3.075	3	1.025	1.368	.258
CR	The interaction effect of pre-test and group	1.638	3	.546	.973	.409
Reflection	The interaction effect of pre-test and group	.385	2	.193	.726	.486

According to the results of Table 8, it can be seen that for the reflection variable and its components, the value of the interaction test statistic between the pre-test and post-test groups is not statistically significant, because the significance level is greater than 0.05 standard error. Therefore, the condition of balance of regression slopes for covariance analysis is established.

- Examining the question



Assumption of Multivariate Test

H₀: Sig. ≥ 0.5 ; Multivariate covariance is not statistically significant

H₁: Sig. < 0.5 ; Multivariate covariance is statistically significant

Table 9
Multivariate Tests for Reflection Components

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.625	9.667	8.000	170.000	.000	.313
Wilks' lambda	.420	11.389 ^a	8.000	168.000	.000	.352
Hotelling's trace	1.270	13.177	8.000	166.000	.000	.388
Roy's largest root	1.178	25.025 ^b	4.000	85.000	.000	.541

Table 9 illustrates the results of a multivariate analysis of variance. Based on these results, quadruple tests were significant at the 95% error level, because the value of Sig. is equal to 0.000, which is less than the value of Alpha (0.05). Therefore, multivariate covariance is statistically significant. This means that the students' reflection in writing at different levels of control and experimental in the post-test has been different and has a significant difference from each other.

The results of Table 10 should be taken into consideration to carefully check each of the components.

Table 10
The Results of the Analysis of Covariance Comparing Groups in terms of Reflection and its Components in the Post-Test by Controlling the Effect of the Pre-Test

Dependent Variable	Source of changes	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
H	Pre-test effect	13.506	1	13.506	15.868	.000	.150
	Independent variable effect(Group)	5.612	2	2.806	3.297	.042	.168
U	Pre-test effect	7.496	1	7.496	10.817	.001	.107
	Independent variable effect(Group)	22.534	2	11.267	16.260	.000	.265
R	Pre-test effect	19.646	1	19.646	25.904	.000	.223
	Independent variable effect(Group)	44.691	2	22.346	29.463	.000	.396
CR	Pre-test effect	2.850	1	2.850	5.082	.027	.053



	Independent variable effect(Group)	11.400	2	5.700	10.162	.000	.184
	Pre-test effect	10.212	1	10.212	38.736	.000	.294
Reflection	Independent variable effect(Group)	18.922	2	9.461	35.889	.000	.436

As Table 10 reveals, the value of the test statistics for reflection and all its dimensions in the post-test stage has become significant at the 5% error level, because their significance level is less than 0.05 standard error. Therefore, after the training in the three control and experimental groups, in the post-test stage, after removing the effect of the pre-test, there is a significant difference in these five variables. The amount of this effect according to the eta squared column for “H” (17), “U” (26), “R” (40), “CR” (18), and “Reflection” (44) percent.

These are the general results of covariance analysis on the data set. To check the trend in each of the groups, we should consider the results in Table 11.

Table 11

The Results of the Analysis of Covariance Comparing Groups in terms of Reflection and its Components in the Post-Test by Controlling the Effect of the Pre-Test separately for each group

Dependent Variable	Source of changes	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
	Ctrl	.059	1	.059	.258	.616	.010
H	Exp1	4.182	1	4.182	7.639	.010	.208
	Exp2	10.536	1	10.536	5.855	.023	.178
	Ctrl	.038	1	.038	.090	.766	.003
U	Exp1	2.645	1	2.645	4.137	.051	.125
	Exp2	9.279	1	9.279	8.476	.007	.239
	Ctrl	3.857	1	3.857	5.521	.062	.091
R	Exp1	5.403	1	5.403	13.831	.061	.123
	Exp2	.716	1	7.716	4.198	.003	.335
	Ctrl	.026	1	.026	.095	.760	.004
CR	Exp1	.446	1	.446	.946	.339	.032
	Exp2	4.673	1	4.673	5.721	.024	.175
	Ctrl	.444	1	.444	.021	.055	.037
Reflection	Exp1	.734	1	.734	.714	.120	.131
	Exp2	8.302	1	8.302	14.964	.001	.333



As can be seen in Table 11, the progress of reflection and all its dimensions has become statistically significant only in experimental group 2, while in experimental group 1, progress has also been seen, it is not statistically significant except for the variables that have had statistically significant progress in both Experimental 1 and Experimental 2 groups. The amount of this improvement is also expressed according to the eta square column for each variable in each group in the post-test.

DISCUSSION

The first research question inquired, 'What level of reflection the EFL learners of the three groups involve in'. In the view of the outcomes, only experimental group 2 performed at the understanding and reflection level, and by so doing, it outperformed other groups, namely experimental group 1 and the control group. This means that the other two groups performed at lower levels. To the researcher's knowledge, no research study has ever endeavored to investigate the impact of teachers' mediation or learners' scaffolding on their reflective writing. In a partially similar study, Farahian et al. (2021) investigated how portfolios can improve various levels of reflective writing. As the findings indicated, the portfolio writers' understanding and reflection outperformed those of the control group learners. What is of great importance here is that like the present study, EFL learners did not employ a significant level of critical reflection in comparison to other levels of reflection.

In their study, the authors proposed that EFL learners' reflective thinking may be motivated by some factors, namely, the thought-provoking aspect of reflection sheets, the kind of feedback given by the instructor to the learners, and pleasure in another strategy of practicing writing ability which thus might have resulted in students' more consideration regarding the writing tasks. However, in the present study, the better performance of the second experimental group (peers' scaffolding) can be attributed to the tailored support learners received from more capable peers. It is through interaction with more knowledgeable peers. Accordingly, it is assumed that the developmental aspect of each learner can be mediated by other more capable ones. The second research question sought which of the three groups of experimental 1, experimental 2, and the control group outperforms the others regarding students' reflectivity in writing. Based on the results, the progress of reflection and all its dimensions has become statistically significant only in the second experimental group, while in the first experimental group, progress has also been seen, and it is not statistically significant. Such a finding can be interpreted in light of the argument put forward by (Lantolf, 2001). As he argues, the idea that the mind is mediated is one of the central ideas discussed in sociocultural theory. Based on the concept, the individual does not enter into a direct relationship with the surrounding world, but his relationship is mediated through the use of tools. The concept of mediation is borrowed from Hegel and Marx. In this regard, Vygotsky and Cole (1978) explain that "While discussing working tools, Marx uses that definition to demonstrate that man uses the mechanical, physical, and chemical properties of objects to cause them to act as forces that affect other objects to fulfill his personal goals"(p. 54). In other words, people use tools to control the world according to their needs. At the same time, between the subject and the object, the tools act as mediators. Based on Kozulin (1998), three types of mediators were identified by Vygotsky (1987): material tools, psychological tools, and other human beings.

Since no similar studies were found with similar results here, the studies with partial similarities are mentioned. Fathi and Rahimi (2022) investigated the effects of the flipped classroom on English as a Foreign Language (EFL) students' overall writing performance, as well as writing complexity, accuracy, and fluency, through quasi-experimental design research. The results showed that the flipped classroom significantly improved and outperformed the non-flipped classroom in terms of EFL students' overall writing performance and writing flow; however, its effect on the complexity and accuracy of students' writing remained insignificant. Based on the findings, implications for teaching EFL writing are provided. The authors recommended another platform like Google Docs for further study. Additionally, to the researcher's knowledge, no study has ever examined the effects of online teacher placement and peer scaffolding on EFL learners' thinking depth of reflectivity. In a comparative study, Khojasteh et al. (2021) investigated the effects of mediated learning on the writing performance of medical students in flipped and traditional classrooms. According to the findings, students in the experimental group who received the flipped classroom intervention performed significantly better than the control group's students in terms of writing skills. As the authors note, the flipped classroom allows students to actively shape their knowledge, rather than being passive



recipients of information, responsible for their learning. Similarly, Piamsai (2020) examined the effect that scaffolding has on the performance of non-proficient EFL learners in an academic writing course. As reported by the author, the results showed that all aspects of the participants' writing skills, i.e., task completion, organization, lexical diversity, structural diversity, and accuracy, have significantly improved.

CONCLUSION

The current research findings demonstrate the effectiveness of scaffolding in improving learners' writing abilities, regardless of whether provided by teachers or peers. Novice/non-proficient writers benefit from the appropriate tools and scaffolding techniques, leading to significant improvement in their writing skills. Additionally, the study indicates that learners have a greater inclination towards learning to write through peer scaffolding compared to teacher mediation. This preference can be attributed to several reasons. Firstly, scaffolding by peers allows for a more effective and productive learning environment, facilitating increased social interaction and fostering learner responsibility. Learners feel more secure and comfortable when their peers are involved in reviewing their writing and providing scaffolding assistance. This collaborative approach fosters motivation, confidence, and workload sharing.

Moreover, gradual peer scaffolding allows for well-planned writing instruction and offers more fruitful support as well as effective solutions compared to teachers. Additionally, peers who have previously experienced similar writing problems can provide effective solutions, which may not always be the case with teachers. Furthermore, learners' perspectives on scaffolding and problem-solving may differ from that of teachers, potentially leading to more effective scaffolding and resolution of writing issues. In conclusion, the research highlights the efficacy of scaffolding in enhancing writing abilities, with peer scaffolding proving to be particularly advantageous. The social interaction, comfort, and collaborative environment created by peer scaffolding contribute to improved writing outcomes. The unique perspective and experience of peers in addressing writing difficulties further enhance the success of peer scaffolding.

IMPLICATIONS

Based on what was found in this study, some implications can be suggested. In the first place, learners can be encouraged to use web-based platforms for all their writing tasks, peer reviews, and feedback. Besides being fun for them to write online, it is easy for all learners to have access to each other's writings for review and feedback. This platform can be the one already prepared, like "Google Docs", or specifically designed by educational institutions. No matter which one it is, instructions should be provided to learners on how to effectively use the platform. If teachers are not well aware of how to use a web-based platform, proper instruction must be given to teachers, as well. Then, teachers can guide learners to review their peers' writings and give feedback in a structured and training-oriented manner. For example, each session can focus on a specific aspect of language, such as tenses or propositions. Otherwise, it is merely a waste of time, besides being a dangerous practice, because although some learners may have good knowledge, there is no guarantee they can give proper feedback to their peers. Another important implication is that teachers must promote collaboration and interaction among learners by asking them to help each other with their writing tasks by giving feedback (monitored and trained). This way, they will learn to depend more on each other and less on their teachers to enhance their self-confidence. Furthermore, assigning learners into groups can enable learners to gain the most profits from their peers and also can give teachers the authority or means to recognize the learners' strengths and weaknesses. The study supports a sociocultural perspective on language learning, which views collaborative interactions as a significant source of learning, theoretically. More importantly, it adds to previous efforts to transform the expert/novice relationship into a collaborative one by incorporating sociocultural scaffolding and the ZPD. Still, another important implication regarding the findings of the present study is that reflectivity and reflective thinking do not develop overnight, and they need constancy and long-term attempts, as Kember et al. (2000) emphasized that such an endeavor necessitates a fundamental shift in perspective, which is challenging and time-consuming. On the other hand, critical reflection should not be delayed until after the learners have improved their writing skills, because it would be difficult and take time to change their mindsets and habits. Assuming that learners are allowed the opportunity to compose portfolios early even in their school years, they will have a great deal of time to further develop their abilities to write and show their achievements (Lee & Lee, 2017).



LIMITATIONS AND SUGGESTIONS

Any research procedure is likely to face some unexpected problems and may have its shortcomings. This research is also bound by several limitations. The study's first limitation is that the population which is involved in the investigation was confined to English learners in one language institute. Also, this study had no attempt to randomly select the participants thus validity and generalizability of the findings may be jeopardized. It should also be mentioned that in the present study, the effect of teachers' mediation and learners' scaffolding on the development of other skills was not measured. Considering the limitations of the present study, several suggestions can be presented for further research by those interested in this area. Another study can be carried out to measure the effect of teachers' mediation and learners' scaffolding on the development of learners' speaking skills. Also, since the population involved in this investigation was confined to English learners in one language institute, the same research can be done with learners in other language institutes. Another research study can be carried out with learners of lower and higher proficiency levels (for example, C1). Since this study was done without randomization, another research study can be carried out by considering randomization and considering different features of students in randomizing them.

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