

The Effect of Employing Dialogue Journals on EFL Learners' Writing Proficiency Through Synchronous and Asynchronous Online Communication

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Abstract

This study aimed to investigate the impact of Dialogue Journals (DJs) on EFL learners' paragraph writing skills, focusing on principles of paragraph writing, comparison and contrast, across synchronous and asynchronous online communication. Following the Oxford Placement Test (OPT), 40 homogenized participants were selected and divided into two groups. Participants, aged 13 to 18, attended classes twice a week for 90 minutes each. Pre-test and post-test paragraph writing assessments were administered and scored analytically using a rubric by Soleimani et al. (2008). Both groups followed Peyton's (2000) suggestions for DJ writing, with experimental group one using face-to-face instruction (synchronous online communication) and experimental group two utilizing the WhatsApp application (asynchronous online communication) over a 6-session study period. Results indicated significant improvements in paragraph writing skills for both synchronous and asynchronous groups, with no significant difference between the two modes of communication. This research can provide various advantages for all language teaching and learning participants. In addition, the students can benefit from the results as they face problems in various stages of writing, including preparation, drafting, editing, and final revision.

Keywords: asynchronous, dialogue journals, online communication, paragraph writing, synchronous

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1. Introduction

In recent years, advancements in technology have revolutionized the field of language teaching, particularly in the realm of writing instruction. The use of virtual learning environments, encompassing both synchronous and asynchronous modes of communication, has provided new opportunities for language learners to enhance their writing skills (Fetscherin & Lattemann, 2008). Synchronous communication involves real-time interaction between teachers and students, facilitated by tools such as video conferences, instant messaging, and online collaboration platforms (Erdoğan & Yazici, 2022). On the other hand, asynchronous communication allows learners to engage with course materials and assignments at their own pace, using platforms like emails, forums, and learning management systems (Murphy et al., 2011).

With the rapid development of new technologies, increased willingness to apply them in educational settings, and the consequences of COVID-19 to pursue academic affairs through new technologies, there is a need to scrutinize their effect on different parts of education. So, the first significance of this project is due to its main interest in working on virtual learning in two distinct areas, called synchronous and asynchronous online communication. In addition, the positive effect of Dialogue Journals (DJs) on writing performance has been highlighted by numerous researchers (e.g., Dabbagh, 2017; David et al., 2018; Datzman, 2010; Foroutan et al., 2013; Hapsari et al., 2018; Hemmati & Soltanpour, 2012; Khairunnisa, 2018; Seiflou & Hashemnezhad, 2018; Liao & Wong, 2010; Madkour, 2016; Noyan & Kocaoğlu, 2019; Valizadeh, 2021; Yulianawati et al., 2019). All the mentioned research pointed to a significant effect on DJs and English as a foreign language (EFL) learners' writing performance. Hence, as the subsequent significance of the current study, the mentioned effect of DJs on writing performance has not been investigated in the area of the virtual environment. The present gap and the researcher's attempt to fill it can be considered the subsequent significance of the present study.

Within the context of writing instruction, DJs have emerged as a valuable tool for promoting language development and fostering meaningful interaction between students and teachers (Taheri & Eidi, 2021). DJs involve students engaging in a written conversation with their teacher over an extended period, providing a platform for informal, conversational

exchanges that can deepen learning experiences (Taheri & Eidi, 2021). While DJs offer numerous benefits for language learners, they also present challenges that warrant further exploration in the context of online communication and writing instruction.

The current study investigated the use of DJs in synchronous and asynchronous virtual learning environments to enhance writing skills among EFL/English as a second language (ESL) learners. By examining the unique features and challenges of DJ writing within the broader landscape of online communication in language teaching, this research sought to contribute to a deeper understanding of how technology can be leveraged to support writing development in language learning contexts. Through an exploration of the benefits and limitations of DJs in virtual learning settings, this study aimed to provide insights that can inform effective pedagogical practices and promote language learning outcomes in the digital age. Despite existing research on the impact of DJs on EFL learners' writing performance, the specific effects of synchronous and asynchronous DJ methods have not been thoroughly explored or compared (Samadian & Mohseny, 2019). Understanding the distinct influences of these communication modes on EFL learners' paragraph writing skills is crucial for optimizing language learning outcomes in online environments.

In the context of EFL education in Iran, where writing skills are often narrowly focused on exam preparation rather than as a holistic skill, the need for effective writing pedagogies becomes even more pressing. Previous attempts to address the decontextualization of writing through various methods and curricula have shown limited success (Samadian & Mohseny, 2019). Iranian EFL learners commonly struggle with low scores in writing exams, pointing to a systemic issue that requires targeted interventions (Azabdaftari & Mozaheb, 2012). By delving into the impact of DJs within the realm of writing instruction, this research aimed to shed light on how synchronous and asynchronous online communication methods can enhance EFL learners' paragraph writing proficiency, offering valuable insights for educators and curriculum developers seeking to improve writing instruction in virtual language learning settings.

2. Literature Review

Various researchers have pointed to the importance of writing skills in EFL/ESL situations. Browker (2007) states that writing is a vital skill to meet life's requirements. According to

Tajmirriahi and Rezvani (2021), EFL/ESL writing is a productive skill that has been confirmed as a challenging skill for learners. Brown (2015) asserts that to get appropriate writing skills in language classes, the learners should "attend to some principles for designing and developing the appropriate writing product" (p. 442). Wafa et al. (2010) suggest that "Limited in grammar, difficult in word choice, and afraid of making mistakes" are among the key reasons why writing is regarded as a problematic skill (p. 1).

2.1 Formal and Informal Writing

It has been revealed that writing has been categorized into two broad categories: formal and informal. The North Coast Institute (2007) declares that the features of formal writing could be listed as follows:

- 1) The focus is on the subject, not the writer
- 2) The writer picks words with precise meanings
- 3) The writer eludes jargon, slang, and abbreviations
- 4) The writer tries to make their statements tentative instead of definite.

On the contrary, some informal written language functions are proposed by Empire State College (2007) as follows:

1) Developing skills include the skills to classify, define, and review. For instance, to establish inferences, analyze complex patterns, question, produce evaluative criteria, visualize hypotheses, examine problems, and recognize procedures.

2) Developing approaches: for instance, inquisitive, close, responsive reading; reporting data and recording (detecting); establishing and arranging data into simplifications; verbalizing theories; and, most importantly, appropriately identifying and applying the methods.

3) Developing awareness: awareness about dominant ideas in a course, but also, for instance, awareness about one's own problem-solving, learning, thinking, language, about data itself, which is metacognition, about the general purposes and additionally precise methods of the discipline.

4) Developing approaches: for instance, approaches toward knowing, learning, one's work; toward errors and mistakes; toward the awareness and views of others; the approaches that affect performances and, therefore, abilities.

5) Developing public learning: inspiring, for instance, motivating examination and discovery in a community of analysis, instead of inaccessible competition; to endorse connected and not disconnected learning and teaching.

6) Developing active learning: for instance, teaching by tasks, instead of just by data; and, lastly, to promote the motivation for acquiring not in the relevance of the topic or the presentation of the teacher, but the social dynamic of the learning.

7) Developing, in summary, overall abilities to learn: for instance, the skill to create problems (as well as answers), questions, to wonder, to think for oneself while working with others.

As a direct consequence, more demands for advanced levels of writing, presentation, and demonstration of mastery through writing are being made by students and their teachers. However, educators are concurrently working with a higher number of students who report problems with composing and primary writing abilities. Zemelman et al. (1998) believe that strong writing could endorse reading skills, as there is a stability of instruction and numerous writing methods are applied. As the central question in this area, the researchers ask two questions and declare that these concepts should be highlighted: what teachers expect the learners to write, and for what aims. For instance, Russell (1992) asserts that "Faculty members and administrators have long agreed that every teacher should teach writing, but since the turn of the century, the American education system has placed the responsibility for teaching writing outside the disciplines, including, to a large extent, the discipline of 'English' or literary study" (p.23).

2.2 Synchronous and Asynchronous Online Communication

Salmon (2014) explains that synchronous online communication includes the teachers' instruction following some questions and answers administered by the teachers and the students. It is cooperative and delivers real-time interaction. It necessitates the simultaneous presence of both student and teacher. In contrast, asynchronous online communication is not

time-dependent, and learners have a choice to work on instructional tasks at their own time and pace. According to Erdoğan and Yazici (2022), there are some tools for synchronous online communications, such as video or audio conferences and phones. On the other hand, emails and social media platforms are the appropriate tools for asynchronous virtual learning. As mentioned before, the current researcher applies "Adobe Connect as synchronous electronic classrooms" (Memari, 2020, p. 94) and "WhatsApp as asynchronous E-learning" (Memari, 2020, p. 91).

2.3. Relationship Between New Technologies and EF Learners' Writing Performance

Chauhan (2016) believes that the theoretical framework supporting the positive effect of technology on writing performance is based on the fact that technology can efficiently expedite and scaffold the writing process. Technology upsurges self-regulating thinking, cognitive enhancement, and other methods of learning new information. Feng et al. (2019) assert that digital tools could easily coincide with the personal needs of writers. In addition, they help writers to build on their previous ideas and knowledge.

Moreover, they activate the cognitive process of writing as writers apply knowledge transformation tactics to engage in a problem-solving task. Various studies around the world have investigated the effect of new technologies on EFL/ESL learners' writing ability and have reported their findings on this novel technique. For instance, in Turkey, Icecap and Genç (2014, as cited in Alenezi, 2022) tested the impact of self-blogging on the writing performance of Turkish EFL learners as well as students' attitudes in this area. The participants were 13 advanced EFL learners studying the English Composition Course at a foreign language institute. The project lasted for 14 weeks, and all learners were asked to make their blogs on which they performed their writing tasks. The writing tasks included articles and paragraphs about various topics. They claimed that it was a mixed-method study as they administered both a self-efficacy scale as a quantitative part and semi-structured interviews as a qualitative approach.

2.4. Dialogue Journals

It has been revealed that EFL/ESL writing performance is one of the primary skills that learners of any second or foreign language must master. According to Richards and Renandya (2002), it is the most challenging skill among other skills. Thus, EFL learners are mostly imperfect and

must be developed through appropriate methods (Al Kayed et al., 2020). One of these techniques is called DJ writing.

In terms of DJ writing, one can also refer to different kinds of journal writing. In EFL/ESL classes, various journaling formats and types have been suggested over the past decades. Through a thorough review of literature, Hiemstra (2001) helpfully proposes different kinds of journal writing such as diaries, dream books, interactive reading logs, learning journals, life stories, professional journals, spiritual journals, and electronic journaling. It has been discussed that by keeping a journal, it is probable that EFL/ESL learners progress their general language functions as they can work with metaphor, rhythms, words, voice, and balance (Wafa et al., 2010). They hold that it also empowers learners to develop valuable individual writing traits regarding their focus and discipline. Moon (1999) claims that keeping a journal in EFL/ESL classes might not only empower learners to recognize their learning process but also enhance their imagination, professional practice, the feeling of self-empowerment, reflective interaction in a class, learners' active engagement, and the quality of learning. Finally, it provides an ideal opportunity for learners who are not good at expressing themselves.

The relationship between various influential factors in language learning and teaching with DJs has been scrutinized by many researchers. Shuy (1993) claimed that keeping a DJ can significantly affect the learners' overall language functions. His claim was examined by Nassaji and Cumming (2000) by conducting a case study on the effect of DJs on learners' language functions. They analyzed language functions in DJs between a Canadian teacher (Ellen) and his 6-year-old Iranian student (Ali) for ten months. It was found that Ali's initial journal writing was limited to reports about either personal facts or general facts. Later, Ali reported his thoughts and presented various questions. Finally, there was an increasing number of Ali's questions against a decrease in Ellen's. They concluded that DJs could meaningfully advance communicative language functions.

Duppenthaler (2004a) worked on DJs at EFL classes and conducted a study. The participants were 99 Japanese EFL learners participating in an interactive DJ for one year. The quantity, quality, and accuracy of learners' DJ writing were focused on by the researcher, offering various kinds of feedback, including positive feedback, error-focused feedback, and

meaning-focused feedback. In the first place, he claimed that based on his findings, the most effective feedback was meaning-focused feedback, expediting the way to reach better writing performance among EFL learners. Later, Duppenhaler (2004b) claimed that meaning-focused feedback had progressively increased the error-free clauses in their writing performances.

Yoshihara (2008) administered another study and claimed that a DJ works as a bridge between teachers and students. He believed that DJs should be considered an effective way of empowering EFL learners to build associations of trust with their teachers. He added that it develops a meaningful teacher-student connection. After a one-year study, he concluded that there was no statistically significant development in learners' writing performance. However, he pointed to some other positive outcomes concerning DJ writing. As a personal experience, he found that DJ facilities are a way to learn more about the students, producing a more trusting and positive relationship. DJs can change students' attitudes toward interaction with their teacher as they advance their language skills.

According to the study conducted by Al Kayed et al. (2020), which investigated the effects of dialogue journal writing (DJW) on English language learning, focusing on vocabulary, organization, grammar, and students' attitudes toward writing, significant improvements were observed in the experimental group compared to the control group. Fifty undergraduate Jordanian students participated in the study and were divided into experimental and control groups, with the experimental group receiving instruction through DJW and the control group receiving traditional writing instruction. Pre- and post-tests were conducted to evaluate the impact of DJW on writing skills, and a questionnaire was employed to gauge student attitudes toward writing.

In another study, Noyan and Kocaoğlu (2019) selected pen/paper and WhatsApp dialogue journaling and its effect on writing performance. The participants participated in 12 treatment sessions, developing dialogues via dialogue journaling. A pre- and post-writing test gathered the data. The final results showed a significant advancement in overall writing production. Nevertheless, in the WhatsApp group, no enhancement in vocabulary knowledge was reported, and no progress in the organizational skills of the control group.

Moreover, Foroutan et al. (2013) worked on the effect of DJs on EFL learners' writing performance versus task-based writing. They reported significant development in EFL learners'

writing performance regarding organization, vocabulary, content, and language use, whereas there was no critical development in overall writing performance. In answer to other research questions, they claimed that task-based writing outperformed DJ writing in the subcategories of writing performance, including language use and organization. In contrast, DJ writing resulted in a better presentation in subcategories, including vocabulary and content.

To our knowledge, there was no research based on the effect of synchronous and asynchronous DJs on EFL learners' paragraph writing. It is worth mentioning that despite some reflections on the effects of DJs on EFL learners' writing performance, the impact of synchronous and asynchronous DJs has not been investigated or compared. So, to fill the present gap, the current research was performed. To this aim, the present study set out to find answers to the following questions:

1. Do synchronous DJs have any significant effect on EFL learners' paragraph writing?
2. Do asynchronous DJs have any significant effect on EFL learners' paragraph writing?
3. Is there any significant difference between the effects of synchronous versus asynchronous DJs on EFL learners' paragraph writing?

3. Method

The present research utilized a quasi-experimental and comparison group study design quantitatively, including two experimental groups without a control group. The study's dependent variable was the learners' writing performance, which was to be investigated using DJs across synchronous and asynchronous online communication as the two independent ones.

3.1. Participants

Initially, a pool of 50 participants was selected among intermediate EFL learners in Qom, Iran, in 2024. They were selected based on a convenience sampling method, a non-probability sampling technique, where the sample is set among a collection of people easy to reach or contact. In the first stage, the homogeneity of the participants was established based on their scores on the Oxford Placement Test (OPT). Out of 50 students, 10 of the students' scores did not fall one standard deviation (SD) below or above the mean, and their scores in both pre- and post-tests were not included in this research work. The final participants included 40 students,

who were in the 8th semester of their language learning program. Additionally, all participants in this study were female, and they were at an intermediate proficiency level in English. Their ages ranged from 13 to 18 ($M = 15.5$), and they attended the classes twice a week for 90 minutes in each session.

3.2. Materials and Instruments

3.2.1. Paragraph Development Book

The instructional book used for teaching the process of paragraph writing was *Paragraph Development* (Arnaudet & Barrett, 1990). The first five chapters of the book, which consist of basic concepts and strategies for paragraph writing, and the sixth chapter of the book, which is about comparison and contrast, were taught in the present research.

3.2.2. Oxford Placement Test (OPT)

It was administered to guarantee the homogeneity of the participating learners concerning their English language ability. This placement test contains 60 multiple-choice questions that assess the participants' English knowledge in terms of usage, prepositions, and vocabulary through cloze passages and fill-in-the-blank items. The test was administered in 30 minutes.

3.2.3. Scoring Modules for Comparison and Contrast

The analytic scoring rubric utilized was developed by Soleimani et al. (2008). This scoring system is segmented into two sections: 1) Scoring Module for Comparison Paragraphs, and 2) Scoring Module for Contrast Paragraphs. Each section consists of three components. Each component is evaluated on a 3-point Likert scale, where 0 signifies the lowest score and 2 indicates the highest score. The researcher provided clear instructions to the raters to maintain consistency in their ratings (see Appendix A).

3.2.4. Pre-Test

It included a comparison and contrast test to evaluate the participants' paragraph writing ability before the treatment. The topic assigned to the learners for the comparison section was "Online Educational Methods versus Traditional Methods." In the contrast section, they were tasked with examining the similarities between urban and rural lifestyles. Each group was directed to identify and elaborate on at least three similarities and differences for both sets of comparisons,

aligning with the structured approach outlined in the research design. The primary aim of this activity was to assess the participants' ability to create English paragraphs that involve comparisons and contrasts. Specifically, they were required to stay within a specified paragraph length of 200-250 words and outline a minimum of three similarities and three differences. To evaluate the quality of the participants' written work before the formal study, Soleimani et al.'s (2008) scoring modules were used for comparison and contrast.

3.2.5. Post-Test

To evaluate the participants' written work after the study, a comparison scoring module and a contrast scoring module (see Appendix A) developed by Soleimani et al. (2008) were utilized. The post-test was allotted 60 minutes.

3.3. Procedure

The OPT test was administered to ensure their level of proficiency and the issue of homogeneity. Initially, there were 50 students, but 10 of the students' scores did not fall one SD below or above the mean, so their scores in both pre- and post-tests were not included in this research. The 40 selected homogenized participants were assigned to two classes named experimental group one (EG1, N = 20) and experimental group two (EG2, N = 20), and both of them were considered experimental groups. In the beginning, as a pre-test, all the participants took a writing test which included two paragraphs of writing on the selected topic. The paragraphs were scored analytically by two raters using an analytic scoring rubric developed by Soleimani et al. (2008). The rubric includes three constituents: Topic Sentence, Topic Development, and Comparison-based /Contrast-based Structures and items. Two raters scored the students' writing. So, students' scores were recorded as their pre-test scores.

During the main phase of the study, the EG1 (synchronous group) class received activities related to DJs through traditional teaching methods (face-to-face). In the first session, the teacher familiarized students with the principles of writing appropriate DJs based on Peyton's (2000) suggestions. The teacher then taught the principles of paragraph writing, focusing on structures and principles of comparison and contrast from the book "Paragraph Development" by Arnaudet and Barrett (1990). Over the next three sessions, the teacher focused on teaching the principles of comparison, and in the subsequent three sessions, the teacher taught the principles of contrast. The teacher provided feedback and asked questions to

encourage critical thinking after each session, aiming to guide students in their journal entries. In the final session, a paragraph writing test was administered with topics on "Comparison: Home Schooling vs. Public Schooling" and "Contrast: Online Shopping vs. In-Store Shopping". The paragraphs were scored using the Comparison/Contrast Scoring Module developed by Soleimani et al. (2008), and the scores were recorded as post-test scores for the students. To ensure the validity and reliability of the assessments, the pre-test and post-test writing tasks were conducted in the classroom under the supervision of both the instructor and a researcher. Before the main study, the pre-test and post-test were pilot tested with a cohort of 20 L2 learners who bore similarities to the participants in the primary investigation.

In the subsequent class sessions, the EG2 (asynchronous group) actively participated in DJ activities facilitated through WhatsApp. The teacher initiated the group on WhatsApp under the name "Asynchronous Group", employing this platform to deliver instruction and educational content during offline periods. Following the established procedure, students were introduced to the core principles of composing effective DJs based on Peyton's (2000) recommendations in the inaugural session. Over the ensuing six sessions, the instructor proceeded to impart knowledge on paragraph writing, specifically emphasizing the intricacies of comparison and contrast structures as delineated in "Paragraph Development" by Arnaudet and Barrett (1990). Throughout this instructional period, the teacher diligently provided constructive feedback on the DJ entries submitted by students, addressing their queries and posing thought-provoking questions to foster a more critical perspective. Within this framework, learners were encouraged to engage with the educational materials at their convenience, demonstrating autonomy in their learning process by reading the lessons over two days and submitting their homework via the WhatsApp group without being constrained by specific time or location requirements.

The study lasted for 6 sessions. In the final session, the teacher administered a paragraph writing test with two paragraphs on the new topics of "Comparison: Home Schooling vs. Public Schooling" and "Contrast: Online Shopping vs. In-Store Shopping." Two raters scored the paragraphs using the Comparison /Contrast Scoring Module developed by Soleimani et al. (2008).

4. Results

To make sure of the homogeneity of the participants, their scores on OPT were ranked, and the mean score was calculated. The other significant index for measuring their homogeneity is the SD. If the participants fell within the range of two SDs below and above the mean score, they could participate in the study. The mean score of participants in the synchronous group was 27.79, and all participants in this group fell in the range of two SDs below (22.61) and two SDs above (32.47) from the mean score. (see Table 1).

Table 1

Participants' Performance on OPT for Synchronous Group

	N	M	SD
OPT	19	27.79	2.59
Valid N (listwise)	19		

According to Table 2, the mean score of participants in the asynchronous group was 27.40, and all participants in this group fell in the range of two SDs below (22.40) and two SDs above (32.40) from the mean score.

To make sure of the homogeneity of the gathered data, a Kolmogorov-Smirnov test was used. The results revealed that the set of data gathered for the pre-test did not violate the rules of normality; thus, the data were normal (Table 3).

Table 2

Participants' Performance on OPT for Asynchronous Group

	N	Mean	Std. Deviation
OPT	20	27.40	2.50
Valid N (listwise)	20		

Table 3

Test of Normality in the Pre-test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pre-test	.125	39	.126	.969	39	.350

a. Lilliefors Significance Correction

Before deciding on the parametric or non-parametric data analysis, the data were analyzed through a Kolmogorov-Smirnov test to ensure their normality. The significance level

in the pre-test for all students (in both groups) was higher than .05, which proved no violation of the normality rules (sig=.126).

4.1. RQ 1

The first research question concerned whether synchronous DJs have any significant effects on EFL learners' paragraph writing, and the null hypothesis was that synchronous DJs do not have any significant effect on EFL learners' paragraph writing.

To this end, the research also focused on the two types of writing, namely comparison and contrast. Tables 4 and 5 show the descriptive statistics and the independent samples t-test. The descriptive statistics in the pre-test showed the mean scores of the synchronous group were 24.05 and 19.63. Moreover, the low level of SDs revealed that participants in this group were almost homogenous (2.80, 3.33).

Table 4

Group Statistics for the Pre-test and Post-test of the Synchronous Group

		M	N	SD	SEM
Pair 1	Final Post-test Sync	24.05	19	2.80	.65
	Final Pre-test Sync	19.63	19	3.33	.76

Table 5

Paired Samples Test

		Paired Differences		T	df	Sig. (2-tailed)
		Mean	SD			
Pair 1	Final Post-test Sync – Final Pre-test Sync	4.42	1.426	13.50	18	.000

As shown in Table 5, there was a significant difference between the mean scores of the synchronous group in the pre-test to post-test (.000). Thus, it can be concluded that using synchronous DJs had a positive effect on participants' paragraph writing. To check the details in this regard, two types of paragraph writing were meticulously scrutinized.

To analyze the effect of using synchronous DJs on the particular type of writing (contrast), the researcher ran a paired samples t-test. The descriptive statistics showed that the mean score increased from the pre-test (9.78) to the post-test (12.05), see Table 6.

Table 6

Descriptive Statistics of Learners' Performance on the Pre-test of Contrast Writing

		Mean	N	SD
Pair 1	Post Con Sync	12.05	19	1.26
	Pre-Con Sync	9.78	19	1.75

To measure if this distance is significant or not, the significance level was checked in Table 7. The significance level showed that there was a significant effect of using synchronous DJs on writing a contrast paragraph (sig. = .000).

Table 8 reveals the effect of using synchronous DJs on the particular type of writing (comparison). The researcher ran a paired samples t-test. The descriptive statistics showed that the mean score increased from the pre-test (9.84) to the post-test (12.00).

Table 7

Paired Samples T-test for the Pre-test of Contrast Writing

		Paired Differences		T	df	Sig. (2-tailed)
		Mean	SD			
Pair 1	Post Con Sync-Pre Con Sync	2.26	.99	9.95	18	.000

Table 8

Descriptive Statistics of Learners' Performance on the Post-test of Comparison Writing

		M	N	SD
Pair 1	Post Com Sync	12.00	19	1.66
	Pre-Com Sync	9.84	19	1.80

To measure if this distance is significant or not, the significance level was checked in Table 9.

Table 9

Paired Samples T-test for the Post-test of Comparison Writing

		Paired Differences		T	df	Sig. (2-tailed)
		M	SD			
Pair 1	Post Com Sync – Pre Com Sync	2.15	1.01	9.271	18	.000

The significance level showed that there was a significant effect of using synchronous DJs on writing a comparison paragraph (sig. = .000).

4.2. RQ2

The second research question concerned whether asynchronous DJs have any significant effect on EFL learners' paragraph writing, and the second null hypothesis was that asynchronous DJs do not have any significant effect on EFL learners' paragraph writing.

The same procedure was followed to measure the possible effect of using asynchronous DJs on two types of writing. The mean scores of pre-test and post-test were 19 and 22.90, and the SDs were 4.07 and 3.56. To check whether their performance in paragraph writing changed drastically, a paired sample t-test was run (Table 10).

Table 10

Group Statistics for Asynchronous Group

		Mean	N	SD	SEM
Pair 1	Final Post-test Async	22.90	20	3.56	.79
	Final Pre-test Async	19.00	20	4.07	.91

According to Table 11, the results of the t-test revealed that there was a significant effect of using asynchronous DJs on participants' writing performance from the pre-test to the post-test (.000). To monitor the results of two types of paragraph writing (comparison and contrast), more paired sample t tests were employed.

Table 11

Paired Samples Test

		Paired Differences			Df	Sig.
		M	SD	t		
Pair 1	Final Post-test Async – Final Pre-test Async	3.90	2.12	8.20	19	.000

To analyze the effect of using asynchronous DJs on the particular type of writing (contrast), the researcher ran a paired samples t-test. The descriptive statistics showed that the mean score increased from the pre-test (9.60) to the post-test (11.70), see Table 12.

To measure if this distance is significant or not, the significance level was checked in Table 13. The significance level showed that there was a significant effect of using asynchronous DJs on writing a contrast paragraph (sig. = .000).

Table 12

Paired Samples Statistics for the Contrast Paragraph Writing in the Asynchronous Group

		M	N	SD	SEM
Pair 1	Post Con Async	11.70	20	1.78	.39
	Pre Con Async	9.60	20	2.08	.46

Table 13

Paired Samples Test for Contrast Paragraph Writing in the Asynchronous Group

		Paired Differences		t	df	Sig.
		M	SD			
Pair 1	Post Con Async – Pre Con Async	2.10	1.16	8.05	19	.000

Table 14

Paired Samples Statistics for the Comparison Paragraph Writing in the Asynchronous Group

		M	N	SD	SEM
Pair 1	Post Com Async	11.20	20	1.96	.43
	Pre-Com Async	9.40	20	2.11	.47

Table 15

Paired Samples Test for Comparison of Paragraph Writing in the Asynchronous Groups

		Paired Differences			df	Sig.
		M	SEM	T		
Pair 1	Post Com Async – Pre Com Async	1.80	.267	6.72	19	.000

To analyze the effect of using asynchronous DJs on the particular type of writing (comparison), the researcher ran a paired samples t-test. The descriptive statistics showed that the mean score increased from the pre-test (9.40) to the post-test (11.20). To measure whether this distance is significant or not, the significance level was checked. The significance level

showed that there was a significant effect of using asynchronous DJs on writing a comparison paragraph (sig. = .000). Check Tables 14 and 15 for the mentioned results.

4.3. RQ 3

The third research question concerned whether there is any significant difference between the effects of synchronous versus asynchronous DJs on EFL learners' writing performance, and the third null hypothesis was that there is no significant difference between the effects of synchronous versus asynchronous DJs on EFL learners' paragraph writing.

As seen in Table 16, the mean scores of groups in the pre-test were very close to each other (19.63 and 19), while the mean scores were different in the post-test (24.05 and 22.90). To check whether this distance is significant or not, an independent samples t-test was run.

Table 16

Group Statistics for Asynchronous vs. Synchronous Groups in Pre-test and Post-test

	Groups	N	M	SD
Pre-test	Sync	19	19.63	3.33
	Async	20	19.00	4.07
Post-test	Sync	19	24.05	2.83
	Async	20	22.90	3.56

Based on Table 17, there was no significant difference in the effect of using synchronous vs. asynchronous DJs on writing a paragraph (.601 and .273).

Table 17

Independent Samples Test for Asynchronous vs. Synchronous Groups in Pre-test and Post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	df	Sig. (2-tailed)
Pre-test	Equal variances assumed	.93	.341	.52	37	.60
	Equal variances not assumed			.53	36.22	.59
Post-test	Equal variances assumed	1.48	.231	1.11	37	.27
	Equal variances not assumed			1.11	35.91	.27

5. Discussion

In employing a synchronous teaching method, significant enhancements were observed in students' paragraph writing. The researcher assessed the influence of employing synchronous DJs on two specific types of writing: contrast and comparison paragraphs. Significant improvements were observed in both writing tasks, with mean scores increasing from the pre-test to the post-test for contrast paragraphs and comparison paragraphs. The statistical significance level confirmed that using synchronous DJs had a substantial positive effect on enhancing students' writing proficiency in crafting both contrast and comparison paragraphs. These findings underscore the efficacy of integrating synchronous DJs as a valuable instructional tool to improve students' writing skills in various types of compositions. These improvements were evidenced by an increase in their self-confidence and a decrease in writing anxiety. Such positive outcomes play a crucial role in fostering good writing and content as they empower students to express their thoughts and ideas more effectively in their written work. Moreover, reducing writing anxiety can create a conducive environment for students to engage creatively and produce high-quality content in their writing assignments. The following vital point is that the writer should know enough about the subject of their work. Students can obtain the required knowledge from interviews, studies, electronic or written sources, or observations.

According to the post-test results on the first research question, learners enhanced their paragraph writing test scores. This aligns with the assertion by Al Kayed et al. (2020) that students exhibited a positive shift in attitudes toward writing upon engaging in DJ writing using a synchronous method. Also, these findings are consistent with previous studies in the literature, including Valizadeh (2021), Noyan and Kocaoğlu (2019), Dabbagh (2017), Marefat (2002), Wafa et al. (2010), Hemmati and Soltanpour (2012), and Foroutan et al. (2013), which all highlighted enhancements in students' writing skills following engagement in synchronous DJs. It indicates the positive effect of DJs on raising learners' enjoyment, interest, and enthusiasm for writing. According to Graham and Perin (2007a), a significant element in fostering learners' enthusiasm for writing is to take care that their writing projects serve a meaningful and real purpose. For instance, it is more inspiring to work on writing a letter to a real person instead of an imaginary one. It is considered that one of the most significant aims of teaching is to empower students to be autonomous learners. As a result, a teacher should help students to be strategic writers. It is essential to take into account that what happens during

writing is not completely visible. To be more exact, most of this process occurs inside the writer's mind. As DJs are not based on the formal aspects of teaching, but rather on the interaction between learners and teachers, it might encourage learners to follow the learning process eagerly. Finally, learners might get better results and better understandings of the main purposes of learning, which is knowing the world better.

The second research question concerned whether asynchronous DJs have any significant effect on EFL learners' paragraph writing. The results suggested that integrating asynchronous DJs effectively enhances EFL learners' proficiency in crafting contrast and comparison paragraphs, highlighting the efficacy of this pedagogical approach in enhancing writing abilities within language learning contexts. According to the literature review, Memari (2020) underscored the significance of asynchronous e-learning environments and discussed the use of WhatsApp as a tool for asynchronous learning in EFL settings, particularly emphasizing its potential impact on paragraph writing skills. This aligns well with the statement regarding the influence of asynchronous DJ writing on EFL learners' paragraph writing proficiency. Conversely, Alibakhshi and Mohammadi (2016) did not specifically focus on DJ writing or its effects on paragraph writing in their research, suggesting that their work was not directly linked to this particular aspect.

According to the results, there were no significant differences between the effects of synchronous versus asynchronous DJs on EFL learners' paragraph writing. It might be that learners in an asynchronous context have enough time to write without any pressure. The literature reviewed in the context of analyzing the impact of technology on students' writing performances in EFL learners offers diverse perspectives on the role of technology in enhancing writing skills. While some studies, such as those by Alenezi (2022), Nyambane and Nzuki (2014), and Kazhan et al. (2020), emphasize the significant influence of technology on educational practices without directly addressing the effects of synchronous versus asynchronous interventions, others, like Chauhan (2016) and Feng et al. (2019), suggest a positive impact of technology on writing performance. These contrasting viewpoints highlight the complexity of the relationship between technology and writing outcomes, opening avenues for further exploration in understanding how different technological interventions may influence language learning processes. According to Mpiti and Makena (2022), new technologies have remarkably affected 21st-century education procedures, and their significant

effects on learning and teaching have been confirmed worldwide. It is of paramount importance to note that easy access to the internet represents a wide range of novel choices regarding innovative online software for EFL/ESL teaching and learning (Kazhan et al., 2020). More specifically, the spread of COVID-19 has recently led to the increasing implementation of mobile and other facilities to teach language. It is supposed that these novel instruments cause new affairs in educational settings as they modify the way of classroom interaction altogether. Since the new generations are interested in using technologies in different aspects of life, such as learning a new language, it is crucial to consider technology as an inseparable part of education in today's world. On the other hand, it is significant to blend technology in teaching with the latest approaches in education. A DJ in writing is one of the recent approaches in teaching, which can be mixed with technology. Nowadays, with technological improvement, the subject of virtual learning has been highlighted by numerous teachers worldwide.

6. Conclusion

The theoretical significance of virtual learning, specifically synchronous/asynchronous DJs, in enhancing students' paragraph writing proficiency is underpinned by several fundamental assumptions. Initially, students involved in synchronous/asynchronous group activities may perceive a heightened sense of importance as they undertake essential roles crucial for the successful completion of collaborative tasks. This sentiment is reinforced by their access to vital information and resources indispensable for the team's triumph, fostering a deeper sense of responsibility and value within the educational journey. Moreover, the collaborative interactions among team members in an asynchronous setting have the potential to drive increased academic accomplishments by promoting the elaboration and organization of material, potentially exceeding the outcomes achievable through traditional teaching approaches. These observations align with the cognitive elaboration perspective, indicating that asynchronous learners need to actively participate in cognitive restructuring and elaboration to effectively absorb and assimilate new information into their existing cognitive frameworks, ultimately enriching their educational achievements.

The present study's findings can provide pedagogical implications for utilizing DJs across synchronous and asynchronous online communication on EFL learners' paragraph writing. Teachers and students can benefit from the results. For language teachers, the present

study's findings can develop their knowledge about the implementation of DJs in the virtual environment. It is worth mentioning that the results are remarkably beneficial as the global spread of COVID-19 led to the extensive use of virtual learning. Generally, EFL teachers can make use of them as a method to affect the students' writing performance. In addition, the literature review offered in the present research leads EFL teachers to a better comprehension of EFL writing performance, its different elements, and the ways to advance it. Similarly, DJs, synchronous, and asynchronous online communication principles are discussed. The results will help EFL teachers to adopt and adapt appropriate principles of DJs to direct EFL writing classes. First, improving EFL learners' writing performance as one of the primary skills that EFL/ESL learners aim to master would make them more confident and satisfied in language classes. In this way, the learner feels freer to express themselves and to write more about their life and other issues, ultimately making them perfect writers. In addition, nowadays, with rapid technological improvement, the necessity is felt to make students familiar with virtual learning and its multiple effects on their language learning process.

The current study explored the effect of DJs on EFL learners' paragraph writing across synchronous and asynchronous online communication. Therefore, the following suggestions need to receive attention so that the gaps in EFL literature might be filled. First, further case studies can explore which kinds of learners most benefit from this software. For instance, the variables such as age and gender can be considered. Second, further research is suggested to investigate the effect of synchronous and asynchronous online communication DJs on other kinds of skills, such as reading or speaking. Third, another study is suggested to explore the impact of synchronous and asynchronous online communication DJs on EFL learners' psychological variables, such as learners' autonomy, self-efficacy, or motivation. Moreover, it is strongly suggested to apply the combination of synchronous and asynchronous online communication to find a new area of teaching. Finally, it is recommended that other research be conducted among other students with different levels of proficiency.

As with any research, this study was subject to certain unavoidable limitations, which may prompt further exploration in the same field in the future. The sample was selected using nonrandom sampling, indicating that the internal validity may not be high. In addition, due to the small sample size and nonrandom sampling method employed in this study, the generalizability of the findings should be approached with caution. Furthermore, as an under-

investigated area of study, especially in Iran, this research can provide various advantages for all language teaching and learning participants. It is worth mentioning that the study's results would apply to EFL/ESL teachers, as they considered writing skills the most challenging skill to learn for students (Shapo et al., 1995). The researcher tried to describe problems teachers face in writing classes and pointed to the factors that constrain their progress in writing instruction through virtual learning. In addition, the students can benefit from the results as they face problems in various stages of writing, including preparation, drafting, editing, and final revision. Meanwhile, the syllabus designer can apply the results in developing appropriate courses for EFL/ESL learners.

Conflict of interest

The author(s) certify/certifies that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in the present research paper.

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Appendix

Scoring modules for comparison and contrast (Soleimani et al., 2008)

APPENDIX-A. Scoring Module for Comparison Paragraphs

Surname:	Output 1 <input type="checkbox"/>	Total Score:
Male <input type="checkbox"/> Female <input type="checkbox"/>	Output 2 <input type="checkbox"/>	
Topic Sentence	Topic Existence & Effectiveness 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
Topic Development	Clarity of Expression of Ideas 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
	Overall Effectiveness of the Whole Paragraph 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
Comparison-based Structures and items	Number of Adjective/Preposition <input type="checkbox"/> Number of Attached Statements <input type="checkbox"/> Number of Punctuation <input type="checkbox"/> Number of Correlative Conjunctions <input type="checkbox"/> Number of Predicate Structures <input type="checkbox"/> Number of Sentence Connectors <input type="checkbox"/>	

APPENDIX-B. Scoring Module for Contrast Paragraphs

Surname:	Output 1 <input type="checkbox"/>	Total Score:
Male <input type="checkbox"/> Female <input type="checkbox"/>	Output 2 <input type="checkbox"/>	
Topic Sentence	Topic Existence & Effectiveness 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
Topic Development	Clarity of Expression of Ideas 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
	Overall Effectiveness of the Whole Paragraph 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/>	
Contrast-based Structures and items	Number of Error-free T-units <input type="checkbox"/> Number of Unique Contrast Lexemes <input type="checkbox"/> Number of Punctuation <input type="checkbox"/> Number of Correlative Conjunctions <input type="checkbox"/> Number of Predicate Structures <input type="checkbox"/> Number of Sentence Connectors <input type="checkbox"/> Number of Adjective/Prepositions <input type="checkbox"/>	