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Original Article

The Impacts of Vocabulary Instruction via Synchronous and Asynchronous Social Networks on Iranian EFL Learners' Reading Comprehension

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Abstract

The significant role of technology in improving second language skills and components has been recently addressed extensively. In the same vein, this quasi-experimental pretest-posttest design study aimed to compare the effects of synchronous and asynchronous social networks in teaching vocabulary to improve English as a foreign language (EFL) learners' reading comprehension. For this purpose, 61 EFL learners were chosen using the convenience sampling method and were randomly assigned to two experimental groups. Before the treatment, a researcher-made reading comprehension test was run as the pretest. Then WhatsApp was employed as the synchronous network for teaching vocabulary for the first group and Instagram as the asynchronous network for the second. The first group had to be online at a specific time, but the second group was given two days to see the posts. The strategies for teaching vocabulary were the same in both groups. After the treatment, another reading comprehension test was administered as the posttest. The statistical analysis indicated significant effects for both networks and a significant difference between the two experimental groups, showing that the asynchronous social network was significantly more effective in enhancing learners' reading comprehension than the synchronous one. The results imply that teachers can benefit from synchronous and asynchronous social networks as good platforms for teaching new words and improving learners' reading comprehension.

Keywords: Asynchronous Social Networks, EFL Learners, Reading Comprehension, Synchronous Social Networks, Vocabulary Instruction.

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1. Introduction

Vocabulary is considered as one's knowledge and information about the words and their meanings in a language. One's vocabulary has different dimensions, including phonological, semantic, and functional aspects (Nation & Snowling, 2004). Vocabulary is the body of each language (Davis et al., 2009) which has a significant role in one's performance in a second language (L2). It consists of all the words one should have in his background knowledge for expressing his opinion, understanding spoken language, and communicating effectively.

Some studies (Crosson et al., 2021; Raudszus et al., 2021; Wawire & Zuilkowski, 2021; Zhang & Zhang, 2020) have investigated the role of vocabulary in different language skills such as reading comprehension. It has shown a positive relationship between the rate of vocabulary that one knows and their reading comprehension ability. Of course, this relationship is not a one-directional connection because if one knows enough vocabulary, it helps him to understand written texts better, and reading itself can foster students' vocabulary (Salah, 2008; Stahl, 1986).

Considering the growing importance of vocabulary in reading comprehension, it is worthwhile to regard the ways of vocabulary instruction that can improve it. Research on vocabulary instruction has found that there are some effective methods for teaching vocabulary (Sedita, 2005). One way of teaching vocabulary can be by employing technology. The rapid development of technology suggests chances for educational systems as well as learning and teaching (Battro & Fischer, 2012). Therefore, many studies (Alibakhshi & Mohammadi, 2016; Kim & Gilman, 2008) have centered on the role of technology in language instruction. One way of employing technology in foreign language teaching is employing synchronous and/or asynchronous social networks.

Some studies (Khodaparast & Ghafournia, 2015; Lotfi & Pozveh, 2019; Zeinali Nejad et al., 2021) have examined the effects of synchronous and asynchronous networks on teaching vocabulary. However, the role of teaching vocabulary through such networks in learners' reading comprehension ability is under-researched. Thus, this study aimed to compare the effects of synchronous and asynchronous social networks in teaching vocabulary on improving EFL learners' reading comprehension.

2. Literature Review

The major place of vocabulary in language instruction, especially in reading comprehension,

has been emphasized by various authors (Biemiller, 2005; Davis et al., 2009; Grabe & Stoller, 2013; Macaro, 2005; Sedita, 2005). Biemiller maintained that when students start to read a passage, they understand the text easily if they know the meaning of the words. But if they don't know many words, they will find the text boring and will not read it eagerly. Sedita (2005) believed that EFL students' good performance in reading comprehension is highly related to their view toward comprehending, which engenders rich vocabulary acquisition needed for performance in reading.

2.1. Studies on the Role of Vocabulary in Reading Comprehension

Some empirical studies (Golkar & Yamini, 2007; Kaivanpanah & Zandi, 2009; Mehrpour et al., 2011; Shiotsu & Weir, 2007) have shown that vocabulary has a significant role in L2 reading comprehension. Golkar and Yamini (2007), for instance, investigated the relationship between reading comprehension and the rate of the vocabulary that one knows. The results of their study proved that there was a high correlation between the learners' reading comprehension ability and vocabulary knowledge. Shiotsu and Weir (2007) investigated the possible relationship between the knowledge of vocabulary and Japanese EFL learners' reading comprehension ability. Their study showed that vocabulary has a colorful and significant role in reading comprehension enhancement. Kim and Gilman (2008) examined the impacts of multimedia components on EFL learners' vocabulary learning. The setting was Myungin Middle School in Seoul, South Korea. The results indicated the group that received multimedia were significantly higher.

Salah (2008) examined if there was any relationship between the rate of vocabulary knowledge and the reading comprehension ability of the learners in authentic Arabic texts. The correlation coefficient was positive. The finding showed a positive relationship between the rate of the vocabulary that one knows and their reading comprehension ability. Kaivanpanah and Zandi (2009) examined the role of the depth of vocabulary knowledge in reading comprehension. The results indicated a direct relationship between vocabulary knowledge and the learners' reading comprehension ability. Mehrpour et al. (2011) investigated the possible relationship between vocabulary knowledge and the reading comprehension ability of EFL learners. The results from data analysis showed that vocabulary knowledge was positively correlated with the learners' reading comprehension.

The issue has also been the concern of more recent studies (e.g., Crosson et al., 2021;

Raudszus et al., 2021; Wawire & Zuilkowski, 2021; Zhang & Zhang, 2020). Analyzing over 100 studies in their meta-analysis, Zhang and Zhang (2020) studied the relationship between L2 vocabulary knowledge and L2 reading and/or listening comprehension. They reported seven interesting findings of these studies, including that for those learners whose L1 and L2 had closer script, vocabulary knowledge and reading comprehension in the L2 showed to be highly correlated. Crosson et al. (2021) studied the effects of a morphology intervention on the participants' academic vocabulary, morphological analysis, and reading comprehension among US multilingual learners. They also examined the mediating effects of morphological analysis and academic vocabulary knowledge on learners' reading comprehension. The results showed that intervention significantly affected morphological analysis ability and academic vocabulary knowledge and indirectly affected reading comprehension. Raudszus et al. (2021), in a longitudinal study, observed L1 Dutch and L2 Dutch readers with various language backgrounds from fourth to sixth grade to find the patterns and predictors of growth. The results showed vocabulary and decoding as predictors of reading comprehension growth. Wawire and Zuilkowski (2021) examined the role of vocabulary and decoding skills in first-grade children's reading comprehension. They used a comprehensive battery of tests to gather data and found receptive vocabulary and pseudo-word reading in English as two factors having a significant role in English reading comprehension.

2.2. Studies on the Use of Technology in Vocabulary Instruction

Due to the high significance of vocabulary in language learning, especially in reading comprehension, many studies have addressed effective ways of teaching and learning vocabulary. Moreover, the widespread use of technology has raised interest in its application in language instruction, including teaching and learning vocabulary. Thus, some studies (Côté & Gaffney, 2021; Khodaparast & Ghafournia, 2015; Kohnke, 2020; Rassaei, 2020; Sadeghi & Ahmadi, 2012; Tozcu & Coady, 2004; Zapata & Sagarra, 2007) have examined the role of various technological tools in learners' vocabulary development. Tozcu and Coady (2004) performed a case study that investigated the role of interactive computer-based texts in improving EFL learners' vocabulary learning. The results of their study indicated the positive role of technology on EFL learners' vocabulary learning. Zapata and Sagarra (2007) compared the effects of online and paper workbooks on L2 vocabulary learning of 549

learners of Spanish acquisition over two semesters. The results indicated that although the two workbooks did not yield significantly different results after one semester, at the end of the second semester, the group working with the online workbook outperformed those with the paper workbook.

Kohnke (2020) surveyed 14 undergraduate students' perceptions of a researcher-developed vocabulary learning app in their development of L2 receptive vocabulary. The app, containing 20 levels, works with both iOS and Android. The qualitative analyses of semi-structured interviews revealed the high motivation of university students for enhancing their L2 vocabulary and their preference for mobile applications, especially those with gamified features. Rassaei (2020) compared the effects of dynamic and nondynamic glosses on EFL learners' vocabulary knowledge. For two sessions, he provided the participants with some short passages with some new words through the Telegram application. He provided the learners in the dynamic group with some graduated prompts to arrive at the correct definition of the words. In contrast, the learners in the nondynamic group received the definition of the words in their first language while reading the text. The results of both posttests and delayed posttests showed that both glossing conditions significantly positively affected learners' vocabulary learning and that the dynamic glossing condition was more effective in L2 vocabulary learning than the nondynamic condition.

2.3. Empirical Studies Comparing Synchronous and Asynchronous Networks in Vocabulary Instruction

Among the studies on the role of technology in language teaching are those comparing synchronous and asynchronous social media regarding their effects on vocabulary learning (Bailey et al., 2021; Karaaslan et al., 2018; Lotfi & Pozveh, 2019; Shintani, 2016; Zeinali Nejad et al., 2021). For example, Zarei and Saddeghi (2011) examined the effects of films' synchronous, asynchronous interlingual, and intralingual transcript presentation on learners' vocabulary comprehension and production. Each of their four groups watched 50 minutes of a film and received a different transcript condition among the four examined conditions (i.e., synchronous interlingual, synchronous intralingual, asynchronous interlingual, and asynchronous intralingual). The results showed no statistically significant effect of transcript presentation on learners' vocabulary comprehension. However, descriptive statistics indicated more efficiency of intralingual transcripts over interlingual ones and asynchronous

transcripts over synchronous ones. Regarding the effects on vocabulary production, they reported no difference between interlingual and intralingual transcripts nor between synchronous and asynchronous ones. Khodaparast and Ghafournia (2015) compared the effects of synchronous, asynchronous, and integrated approaches on Iranian English major university students' vocabulary learning. The findings indicated that the three technological approaches were significantly more effective than no technology and that the integrated approach was more effective than the other two technological approaches. Alibakhshi and Mohammadi (2016) examined the comparative effect of asynchronous and synchronous multimedia and presenting graphics and text on collocation learning among EFL learners. The findings indicated that employing computerized mediated instruction was highly effective in learning collocations. The learners of the synchronous instruction had better scores than the participants in the asynchronous group.

To compare the effects of synchronous and asynchronous activities on learners' motivation and vocabulary enhancement, Karaaslan et al. (2018) provided two groups of learners with digital game-based activities. One of the groups did the activities synchronously in class, and the other did it asynchronously out of class. The participants' reflections on the vocabulary learning experience showed that both groups had positive perceptions of the game-based activities. The learners in the synchronous group believed that the activities boosted their interaction and competition, resulting in more effective learning and retention of the words. On the other hand, those in the asynchronous group stated that they thought of the game-based activities as fun activities that they could do to avoid getting bored. In their study, Lotfi and Pozveh (2019) investigated the effect of synchronous and asynchronous media on vocabulary learning of 82 intermediate students aged between 12 and 18. Vocabulary items were taught synchronously in a class and delivered via email to the asynchronous group. The statistical results of their findings illustrated that the participants who received vocabulary synchronously performed significantly better than their counterparts in the asynchronous group.

In sum, it can be concluded that many studies have been conducted concerning the role of vocabulary on the reading comprehension ability of language learners. A large bulk of research has focused on implementing technology-assisted language instruction. Nonetheless, to the researchers' best knowledge, no empirical study has compared the effects of teaching vocabulary through synchronous and asynchronous social networks on

improving EFL learners' reading comprehension. This study aimed to help fill this gap in the literature. To achieve this purpose, it addressed the following three questions:

1. Does the use of synchronous social networks in teaching vocabulary significantly affect intermediate EFL learners' reading comprehension?

2. Does the use of asynchronous social networks in teaching vocabulary significantly affect intermediate EFL learners' reading comprehension?

3. Is there any significant difference between employing synchronous and asynchronous social networks in teaching vocabulary to improve EFL learners' reading comprehension?

3. Methodology

A quasi-experimental pretest-posttest design was employed in this study. There was no true randomization in sampling; instead, convenience sampling was used. Of course, randomization was used in assigning the two intact classes into the two experimental groups.

3.1. Participants

For this study, the researchers considered intermediate EFL learners as the population of the study. A convenience sampling design was employed to choose 85 students as the initial participants. The researchers used the Preliminary English Test (PET) to homogenize the participants. The display of the scores on the histogram demonstrated the normal distributions of the PET scores. Based on the results of PET, those learners whose scores were between one standard deviation (i.e., 14.84) below and one standard deviation above the mean (i.e., 58.51) were chosen as the participants for the main study. Sixty-one learners' scores fell in this range, between 44 and 73, and thus were selected as the research sample. Then, the selected participants were randomly assigned to two experimental groups; the first experimental group (EG1; n=31) and the second experimental group (EG2; n=30). They were in six intact classes. All of this study's participants were female, aged 14 to 17. The course book of the students in the institute was *Interchange 3,* which was considered suitable for intermediate students.

3.2. Instruments

Four instruments were employed to gather data to fulfill the study's objectives. The

instruments included a version of PET, two researcher-made reading comprehension tests as pretest and posttest, and a list of words to be taught through two social media applications (i.e., WhatsApp & Instagram).

3.2.1. Preliminarily English Test (PET)

For homogenizing the participants of the current investigation, the researchers employed the 2014 version of PET. The test includes four sections. The first section was devoted to reading comprehension and consisted of 35 items; the second section was on writing in which usually eight items were given to students to write about; the third section of PET was the listening part which included 25 multiple-choice items, and the last section was the speaking section in which the test takers' oral responses were recorded and then rated based on the Rubric of PET. It should be noted here that for the sake of facilitating the administration and scoring procedure and concerning the time limitation the researchers had for administering the test, the speaking and writing sections of the test were not executed. Therefore, the PET for the study purpose included only reading and listening sections (60 items). The reliability index achieved in this study was .90, which is indicative of the high reliability of this test.

3.2.2. Reading Comprehension Pretest and Posttest

The researchers designed two parallel multiple-choice reading comprehension tests based on PET format and the content of their course book. The first drafts of the two tests, each consisting of 35 items, were evaluated by two experienced EFL teachers for content validity. Based on their comments, 5 items of the pretest and 3 items of the posttest were removed. Two more items of the posttest were omitted to make the number of items the same in the two tests. The reliabilities of the pretest and posttest were calculated and showed to be .79 and .81, respectively.

3.2.3. The Word List

A list of 60 words was taught to two groups through WhatsApp and Instagram applications. To select the words, the researchers selected a list of 100 new words from the book and given to the participants to show their degree of familiarity with them. They were asked to rate their familiarity on a 3-point Likert scale (ranging from 1= I haven't seen the word before, 2= I have seen the word, but I'm not sure about the meaning, and 3= I haven't seen the word).

Then, based on the responses, 60 of the words they hadn't seen before were chosen as the words to work on during the treatment.

3.3. Data Collection

Given the objective of this investigation, 85 intermediate EFL learners from Sadaf English Institute in Tehran, Iran, were chosen as the target population. PET was conducted to homogenize the participants. Descriptive statistics were run for the scores on this test. Based on the results, those students whose scores fell between one standard deviation below and one standard deviation above the mean were considered the main sample of this study. The participants in six intact classes were randomly divided into two groups: experimental group 1 (EG1, n=31) and experimental group 2 (EG2, n=30). Before the treatment, the researcher-made reading comprehension pretest was administered to assess the participants' reading comprehension level. During the treatment, which lasted for twelve 90-minute sessions, the second researcher, the teacher, employed WhatsApp and Instagram applications to teach the participants the word list (consisting of 60 words) while taking their regular institute classes. The teacher explained the procedures for using the two applications in the groups. For the first group, WhatsApp was employed as the synchronous social network for presenting vocabulary. A group was created on WhatsApp for this group of participants, and they were asked to be online from 7 p.m. to 8 p.m. three days a week. The teacher posted five new words at this time, and the students had to be online to see the items. Each student had to make sentences with the new words provided in the group. The strategies for teaching these words were providing definitions, making sentences using the words, and matching words with the related pictures. The students were encouraged to do the exercises and share their answers with the group. The same words were taught in the second experimental group through Instagram as the asynchronous social network. The strategies for teaching vocabulary were the same as those for the first group. In this group, each session, the teacher posted on Instagram 5 new words which were the same as those taught to the first group. Students in this group had two days to see the posts, make sentences, do the related exercises, and post their answers under the related posts. Finally, after the treatment, the learners in both groups took the reading comprehension posttest designed to measure their reading ability after using the social networks.

3.4. Data Analysis

After scoring the pretest and posttest, the data were analyzed using SPSS software. To answer the first and the second questions, two paired-samples t-tests were carried out to compare the vocabulary mean scores after the treatment with those before the treatment for each of the two groups. For answering the third question, an independent samples t-test was run to compare the mean gain scores of the two groups from pretest to posttest to see whether there was a significant difference between their achievements.

4. Results

The objective of this study was to compare the effects of teaching vocabulary through synchronous and asynchronous social networks on improving EFL learners' reading comprehension. First, the effect of any of these social networks on learners' reading comprehension was examined. Then, the two experimental groups' scores on the reading comprehension tests were compared after the treatment to see which social network was more effective.

4.1. Effect of Teaching Vocabulary via Synchronous Social Networks on Reading Comprehension

The purpose of the first research question was to investigate the effect of teaching vocabulary via synchronous social networks on learners' reading comprehension. A paired-samples t-test was conducted to examine the potential effects of teaching vocabulary in *synchronous* social networks on intermediate EFL learners' reading comprehension. The skewness and kurtosis measures of pretest and posttest data were checked, with both being between an agreed-upon range of +1.96 and -1.96.

As can be seen in Table 1, the students in the posttest (M = 19.70, SD = 3.46) had a better performance, as against theirs in the pretest (M = 16.74, SD = .2.78).

Table 1.

Descriptive Statistics of Two Testing Times of Synchronous Social Networks Group(N= 31)

		Mean	Std. Deviation	Std. Error Mean
Synchronous Social Networks	Pretest	16.74	2.78	0.49
	Posttest	19.70	3.46	0.62

As Table 2 shows, the paired-samples *t*-test indicated that there was a significant difference between the pretest and posttest of the synchronous social networks group, *t* (30) = -18.88, *p* = .00, with the Cohen's effect size value being 1.69, which can be considered as a very large effect size. To conclude, it can be said that teaching vocabulary in synchronous social networks did have a statistically significant effect on intermediate EFL learners reading comprehension.

Table 2.

Paired-Samples t-test for Synchronous Social Networks Group

Paired Differences						
	Std.	95% CI				
Mean	Deviation	Lower	Upper	t	df	Sig.
-2.96	0.87	-3.28	-2.64	-18.88	30	0.00

4.2. Effect of Teaching Vocabulary via Asynchronous Social Networks on Reading Comprehension

The second question aimed to examine the effect of teaching vocabulary via asynchronous social networks on reading comprehension. Another paired-samples *t*-test was implemented to investigate the potential effects of teaching vocabulary via *asynchronous* social networks on intermediate EFL learners' reading comprehension. The skewness and kurtosis measures of pretest and posttest data in this group were checked, with both being between an agreed-upon range of +1.96 and -1.96.

As can be seen in Table 3, the students of this group in the posttest (*M* = 22.26, *SD* =

3.78) had a better performance, in comparison with theirs in the pretest (*M* = 16.50, *SD* = .2.73).

Table 3.

Descriptive Statistics of Two Testing Times for Asynchronous Social Networks Group (N= 3 ٠)

		Mean	Std. Deviation	Std. Error Mean
Asynchronous	Pretest	16.50	2.73	0.50
Social Networks	Posttest	22.26	3.78	0.69

The paired-samples *t*-test indicated a significant difference between the pretest and posttest of the asynchronous social networks group, *t* (29) = -23.28, *p* = .00, with the Cohen's effect size value being 3.76, which can be considered a huge effect size. To conclude, it can be said that teaching vocabulary in asynchronous social networks also did have a statistically significant effect on intermediate EFL learners reading comprehension. Our second null hypothesis was also rejected.

Table 4.

Paired-Samples t-test for Asynchronous Social Networks Group

	Paired Differences						
			95% CI				
	Mean	Std. D	Lower	Upper	t	df	Sig.
Pretest Posttest	-5.76	1.35	-6.27	-5.26	-23.28	29	0.00

4.3. Comparative Effects of Teaching Vocabulary via Synchronous and Asynchronous Social Networks on Reading Comprehension

One independent-samples *t*-test was conducted to investigate the difference between the effects of employing synchronous and asynchronous social networks concerning teaching vocabulary on improving EFL learners' reading comprehension. The results are presented in Table 5 and Table 6.

Table 5.

The Descriptive Statistics of Reading Comprehension Gain Scores of Different Groups from Pretest to Posttest

Group		N	Mean	Std. D	Std. Error Mean
Gain score	Synchronous	31	2.69	0.87	0.15
	Asynchronous	30	5.76	1.35	0.24

Table 6.

Independent Samples t-test for Gain Scores from Pretest to Posttest

		Levene's Test		t-test				
							95% CI	
		F	Sig.	t	df	Sig	Lower	Upper
Gain Score	Equal variances assumed	13.94	0.00	-9.60	59	0.00	3.38	2.27
	Equal variances not assumed			-9.54	49.32	0.00	3.38	2.21

The results of the independent-samples *t*-test on gain scores of reading comprehension from the pretest to the posttest indicated that there was a significant difference between the mean gain score of the synchronous group (M = 2.69, SD = .87) and that of the *asynchronous* one (M = 5.76, SD = 1.35), t (49.32) = -9.54, p = .00, equal variance not assumed (See Tables 5 and 6), with Cohen's d effect size of 2.69 which was considered a huge effect size. It can be said that students in the asynchronous group had far more advances from the pretest to the posttest (an average of 5.76 points increase) than their counterparts in the synchronous group (an average of 2.69 point increase). Consequently, it can be concluded that there was a statistically significant difference between the effects of employing synchronous and asynchronous social networks in teaching vocabulary on improving EFL learners' reading comprehension.

5. Discussion

This study aimed to compare the effects of teaching vocabulary through synchronous and asynchronous social networks on improving EFL learners' reading comprehension. The results showed that (a) using both synchronous and asynchronous social networks in vocabulary instruction had significant effects on the reading comprehension of the learners; (b) there was a statistically significant difference between the effects of employing synchronous and asynchronous social networks in teaching vocabulary on improving EFL learners' reading comprehension, and (c) asynchronous teaching of vocabulary was more effective than synchronous teaching in developing learners' reading comprehension.

Concerning the effectiveness of the use of social networks in teaching vocabulary, as envisaged in the results of the first two questions of the study, the findings indicated that both synchronous and asynchronous teaching of vocabulary positively influenced EFL learners' reading ability. The results of this part are consistent with several studies (Alibakhshi & Mohammadi, 2016; Karaaslan et al., 2018; Khodaparast & Ghafournia, 2015; Kim & Gilman, 2008; Kohnke, 2020; Rassaei, 2020; Tozcu & Coady, 2004; Zapata & Sagarra, 2007) which have reported the usefulness of using technology in vocabulary teaching and learning. The results, however, contrast with the findings by Zarei and Saddeghi (2011), who found no significant difference between synchronous and asynchronous modes of transcript presentation on learners' vocabulary comprehension and production.

Regarding the difference between the effects of synchronous and asynchronous social networks in teaching vocabulary, the study showed that asynchronous vocabulary instruction was significantly more effective than synchronous teaching in improving learners' reading comprehension. The results of this part of the study are in contrast with those by Alibakhshi and Mohammadi (2016) and Lotfi and Pozveh (2019). Both studies reported that students significantly benefitted from both types of media, but that the students in the synchronous groups outperformed those in the asynchronous ones.

In line with the present study's findings, it can be argued that technology can be advantageous for language teaching and learning opportunities. Even though the evidence is in favor of asynchronous networks, when not feasible to use asynchronous networks, teachers and learners can take advantage of synchronous networks for two reasons. The first reason is that empirical findings have supported the efficiency of synchronous networks. The

second one is that, as shown by Karaaslan et al. (2018), each network type can engage the learners in its way. According to Karaaslan et al., learners consider synchronous networks to increase interaction and motivation. In contrast, the asynchronous ones have the advantage of being used for fun at a convenient time. Teachers can use a combination of the two media types wherever possible. Studies (Khodaparast & Ghafournia, 2015) have indicated the superiority of integrating the two network types over using each separately.

Another point to consider is employing technology. As Zapata and Sagarra (2007) state, the use of technology may have long-term effects on language learning; thus, short-term inefficiencies should not discourage teachers and learners from implementing technology-assisted language learning.

A further point to consider is that teachers' creativity can enhance the efficiency of technology implementation in language learning. In addition to integrating different social networks, teachers can add more attractions to the learning process by choosing technological tools which encourage more learner activity or increase their motivation. For instance, Rassaei (2020) showed that learners in the dynamic glossing group who were provided with graduated prompts enjoyed using technology more than those in the nondynamic condition. In addition, Kohnke (2020) found learners more interested in mobile applications with game-based features.

6. Conclusion

To compare the effects of teaching vocabulary through synchronous and asynchronous social networks on EFL learners' reading comprehension, two groups were given vocabulary lessons using WhatsApp as a synchronous social network and Instagram as an asynchronous social network. The results showed that although both groups got better scores on the posttest, the asynchronous group performed significantly better than the synchronous one. Generally stated, the results suggest that online platforms can provide suitable opportunities for learning vocabulary. They can be considered interesting platforms for teaching and learning vocabulary. Employing these networks can make the environment more fun for learners and help enhance their motivation for learning. Teachers can provide meaningful instruction by thoughtfully integrating real and virtual worlds. This might also help teachers save time.

Following the spread of virtual education during the COVID-19 pandemic, many

students are equipped with smartphones or tablets. Therefore, teachers can assign more active roles to learners than before by guiding them to use their electronic devices for language learning. Particularly, the learners might benefit from asynchronous social networks, which allow them to see the content whenever they feel ready. In this way, they can rely more on their ability to decide on the best time to do the tasks, which might positively affect their autonomy.

This study has some implications for the field of language education. First, the result indicated the significant effect of both synchronous and asynchronous social networks in teaching vocabulary. Thus, teachers and syllabus designers should pay more attention to these tools in their jobs. This also implies to the learners that they can use social networks in developing their vocabulary in an L2. Second, due to the effectiveness of social networks in language learning and their enjoyment, teachers must always be aware of the new opportunities technology creates for them and their learners.

Moreover, the study suffers several shortcomings. One of the limitations was the narrow range of participants selected only from one English institute in Tehran. In addition, the researchers could only work with female students due to some limitations. Second, the study was done with intermediate students because the first researcher, the teacher, had enough experience working with that level of students. Third, only one application was used for the two groups of synchronous and asynchronous networks. In line with the limitations of the present study, a few suggestions can be proposed for further research. Due to the importance of instructional settings, other similar studies are recommended in other pedagogical settings, such as high schools and universities. Moreover, as this study focused on Iranian intermediate EFL students, similar studies can be done with students at other proficiency levels or across proficiency levels. In this research, the researchers examined the effect of teaching vocabulary through WhatsApp and Instagram as social networks on learners' reading comprehension. Further studies can address the effects of other social networks and also effects on other skills.

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