Journal of English language Teaching and Learning

University of Tabriz

Volume 14, Issue 30, (Fall and Winter 2022)

The Impact of Edmodo as an Asynchronous Online Discussion Forum on English Reading Comprehension Skills of Iranian Learners

Mostafa Eslami

English Language & Literature Department, University of Semnan, Semnan, Iran

Mostafaeslami20@gmail.com

Akram Bahrami (Corresponding Author)

English Language & Literature Department, University of Semnan, Semnan, Iran

akram.bahrami@semnan.ac.ir.

ARTICLE INFO:

Received date:
2022.06.09
Accepted date:
2022.07.06

Print ISSN: 2251-7995
Online ISSN: 2676-6876

Keywords:

asynchronous online discussion forum (ODF), Edmodo, blended teaching and learning, reading comprehension skills, TOEFL iBT

Abstract

Online discussion forums (ODFs) offer students and teachers the opportunity to harness the endless power of the internet for educational purposes. This study investigates the impact of Edmodo as an asynchronous ODF on six of the most recurring reading comprehension skills in the TOEFL iBT test among Iranian learners. Online and offline treatments were given to 26 students in the experimental group and only offline treatments to 33 students in the control group. The statistical analysis of the data represents a large effect size (Partial η2=.234; r=.826; Partial η2=.397; r=.661) for identifying factual information, making inferences, guessing vocabulary from context, and inserting texts in the passage skills respectively, a moderate effect size (r=.363) for the understanding the rhetorical purpose of the passage, and a weak effect size (r=.156) for the identifying referential relationships between the words in the passage skills. The results tell us that Edmodo is effective in teaching reading comprehension skills by overcoming the usual time constraints and offering students autonomy in going online at the most convenient time and place. Finally, the findings are valuable for educational policymakers, curriculum designers, materials developers, language instructors, and language learners.

DOI: 10.22034/ELT.2022.52013.2494

Citation: Eslami, M.; Bahrami, A. (2022). The Impact of Edmodo as an Asynchronous Online Discussion Forum on English Reading Comprehension Skills of Iranian Learners. *Journal of English Language Teaching and Learning*, 14(30), 75-90. Doi: 10.22034/ELT.2022.52013.2494

1. Introduction

The dramatic progress of online learning alternatives has been a blessing to language learning, where accessibility and flexibility have facilitated broader participation for exponentially various learners than would be conceivable with mere face-to-face education. Yet, the rapid application of technology-mediated learning has sounded the alarms for the effortlessness of going online to learn, whereas the same moves may still be well behind in pedagogical practices (Goertzen & Kristjansson, 2007; Salmon & Angood, 2013).

Prior research illustrates that online learning settings promote satisfaction and learning outcomes in language learners (Lim et al., 2007; Neuhauser, 2002). Moreover, the cost-effectiveness of online learning makes learning possible for a wide range of learners worldwide. Now people can enter classes in the online environment that otherwise wouldn't be available to them in their country or region, which results in a significant improvement in education in places with less equipped educational infrastructure (Sife et al., 2007).

Online learning environments also come with a few drawbacks, such as technical problems and the lack of interaction that can inhibit learning (Armstrong, 2011; Delahunty, 2018). While being capable of going online at the optimal time and place holds particular interest for potential students, it can affect the prospects of growing a feeling of belonging to a community of learning out of quality relationships among members of the community who might not ever meet in person. In an online learning setting, prospective interaction is disturbed through the method of passing on the teaching (Wegerif, 2013). Words like 'lurkers' or 'read-only participants' incline to place the burden of participating on students' shoulders, which brings up the question of what fits the best in online learning (Salmon, 2005).

Since both traditional learning and pure e-learning have their pros and cons, it is advised to amalgamate both settings to create a new method, the blended learning, so as to use the merits of each learning setting in a two-in-one package (Azizan, 2010). To increase students' learning product as well as their satisfaction with the learning procedure, teachers started to employ diverse delivery methods, hence, the exercise of blended instruction has rapidly increased (Lim & Morris, 2009). In ELT, blended learning, like Whittaker (2013) puts it, is any hybrid of online and/or offline computer technology use and face-to-face teaching.

In online teaching and learning environment, ODFs are among the top choices in asynchronous communication tools (Durairaj & Umar, 2015), which are a useful supplement for teaching and learning. By establishing a virtual learning environment in which students asynchronously share their responses and ideas around a topic, using links, materials, and reading where necessary, forums open doors to peer-learning for students. (Camarero et al., 2012). Edmodo is an online discussion forum that is specially designed for learning purposes. It has become a widely-used learning platform and is being incorporated as an alternative learning environment in many educational institutions around the world for its functionality, user-friendliness, and cross-platform simplicity (Hourdequin, 2014).

2. Literature review

2.1. Blended Learning

The name "blended learning," despite its now prevalence ELT because of Sharma and Barrett's (2008) book with the same title, is difficult to define, as mentioned by Whittaker (2013) after

around a decade since its primary use in ELT, where she proposed a simple yet comprehensive definition of the term as follows: "In ELT "blended learning" is the term most commonly used to refer to any combination of face-to-face teaching with computer technology (online and offline activities/materials)." (p.12)

2.2. Online Discussion Forums (ODFs)

Emerging from email groups and internet-based chat technology in the 1990s, discussion forums are a flexible and convenient way of communication between students as well as their instructors (Bower & Hardy, 2004). As stated by Wikle and West (2019), 'asynchronous ODFs' are the most commonly used Computer-mediated communication instrument for student-instructor and student-student interaction. Many instructors believe there are many benefits to using forums for learning purposes, for instance, a greater number of students can participate in discussions —especially in large classes (Brush et al., 2002), more students are engaged (Salter & Conneely, 2015), giving students more time to reflect before speaking (Petrides, 2002), discussions are more thorough (Salter et al., 2017), easily dividing the class into smaller groups (Dzubinski, 2014), class discussion is easily archived, and students understanding of a topic is better understood (Thomas & Biriyai, 2014).

2.3. Edmodo

Edmodo, an online discussion forum founded by O'Hara and Borg in 2008, akin to Facebook but envisioned for educational use (Kongchan, 2013), is among the latest technologies used in language classes (Kongchan, 2012). It is now available at www.edmodo.com. Edmodo, with more than 100 million users (Anya, 2019), is utilized by numerous educational organisations around the world because of its enticing properties (Delacruz, 2013): providing secure online environment (Kongchan, 2013); being free and user-friendly (Kongchan, 2012; Thongmak, 2013); and providing the opportunity for literacy learning and facilitating communication (Delacruz, 2013). Hence, there is little doubt about how Edmodo helps students' through the experience of learning. Some bodies of research have demonstrated the way Edmodo functions in reading classes (Warawudhi, 2017; Yagci, 2015). The research results generally tell us that Edmodo is capable of being integrated into reading.

2.4. Reading

In most EFL academic situations, the ability to comprehend texts in a foreign language is the most wanted by the students. Although reading skills do not promise success, it is considerably harder to come by without them (Grabe, 2012). Yet, reading can be taken for granted by many because of its processes' intuitive nature, which is beyond our conscious control (Williams & Moran, 1989). Readers can, to a large extent, take active control over their reading process by implementing strategies that are conscious and deliberate (Urquhart & Weir, 1998). Strategies such as discovering the meaning of unfamiliar words, finding and organizing main ideas, activation of background knowledge, finding references, finding answers, and so forth.

Reading skills, on the other hand, are automatic in nature and often happen without awareness of the components or conscious involvement, which results in comprehension with speed, efficacy, and fluency (Afflerbach et al., 2008). There are many reading comprehension skills taxonomies, but it seems there is not a consensus on the number of the skills. Four of the skills that are primarily repeated in taxonomies, according to Zarei and Pedram (2018), are:

"1. Drawing a logical inference from a reading passage,

2. Finding out the mood or tone of a reading passage,

3. Guessing the meaning of unknown words from context, and

4. Getting the main idea of a reading passage." (p. 6)

2.5. TOEFL iBT Test

The TOEFL iBT test, as cited by Phillips (2015), is a test that measures non-native speakers' English language proficiency and academic skills. It is primarily required by more than 11000 English-language universities and colleges and, also, businesses, government agencies or other institutions in more than 150 nations, including Australia, Canada, New Zealand, the United States, the U.K., and across Europe and Asia (Educational Testing Service, 2017).

2.5.1. Reading Skills in TOFFL iBT

Skills are defined as linguistic processing abilities that are fairly used automatically by readers (e.g., syntactic processing, word recognition) (Grabe & Stoller, 2013). There are various skills required by the readers to comprehend reading passages in English proficiency tests such as TOEFL and to answer the questions correctly. Based on Educational Testing Service (2017), there are 10 question types in a TOEFL iBT test reading section.

Six of the most recurring skills, namely finding factual information, making inferences, understanding rhetorical purposes, understanding vocabularies, finding pronoun references, and text insertion, were chosen for this research.

2.6. A Review of the Previous Studies

A peek at the previous studies gives us insight into the why and how of the current research. Four researches (Davidson-Shivers et al., 2000; Gao & Wong, 2008; Mohamad et al., 2012; Mohamad et al., 2013) delved into the effects of online learning on reading comprehension of students, all of which showed a positive effect of online instruction of the reading comprehension on the overall proficiency of students. In their research in the Iranian EFL context on the effect of virtual teaching, Akbari et al. (2021) found online teaching to be the most effective means of instruction of reading comprehension, followed by blended mode of delivery and then conventional face-to-face teaching. In five other pieces of research carried out in Iran (Behjat et al., 2012; Ghazizadeh & Fatemipour, 2017; Kheirzadeh & Birgani, 2018; Rad, 2018; Zahedi & Tabatabaei, 2015), the researchers explored the effect of blended instruction of reading comprehension on the students' improvement in the reading comprehension skill. The treatments were given through various platforms such as Nicenet.com, moodle, and other web-based media. Again, all of the researches exhibited positive results. Lastly, Pratama (2015), similar to previous studies, exploited the blended approach to teaching reading comprehension using Edmodo, and obtained the same positive results as others. The review of the previous literature reveals that there are still some points left unanswered. Some studies took only the online mode into account, and some others blended the conventional and online modes. What seems to be lacking here is the fact that none of the previous researchers tried to examine how blended instruction affects individual skills of reading comprehension, let alone those skills that are necessary for success in the reading comprehension section of the TOEFL exam. Moreover, merely one of the studies reviewed

above carried out in Indonesia (Pratama, 2015) incorporated Edmodo as an asynchronous ODF for the instruction of reading comprehension. Therefore, to ensure the efficacy of using Edmodo, because of its enticing features, in the Iranian EFL context for reading comprehension skills instruction, it is well worth a thorough investigation of the subject matter.

Attempting to exploit the merits of online learning technologies for pedagogical purposes, this study explores the impact of using asynchronous ODFs such as Edmodo along with traditional face-to-face instruction on students' reading comprehension skills by probing the following six research questions:

1. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of identifying factual information of Iranian learners?
2. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of making inferences of Iranian learners?
3. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of understanding the rhetorical purpose of the passage of Iranian learners?
4. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of guessing vocabulary from context of Iranian learners?
5. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of identifying referential relationships between the words in the passage of Iranian learners?
6. Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of inserting texts in the passage of Iranian learners?

Below are the six null hypotheses of this study:

1. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of identifying factual information of Iranian learners.
2. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of making inferences of Iranian learners.
3. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of understanding the rhetorical purpose of the passage of Iranian learners.
4. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of guessing vocabulary from context of Iranian learners.
5. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of identifying referential relationships between the words in the passage of Iranian learners.
6. Edmodo as an asynchronous ODF does not affect the English reading comprehension skill of inserting texts in the passage of Iranian learners.

3. Methodology

3.1. Design

The non-equivalent group design was used in this quasi-experimental research. Two intact groups were selected for current research instead of the random sampling method used in experimental methods. It was not possible to randomly assign participants since the classes

used in the study were intact groups whose levels, teachers, and classes were predetermined. Pretest and post-test were administered to assess the effect of the treatment. The treatment consisted of six lessons. Each lesson took one session per week, lasting 60 minutes. The treatment lasted about six weeks.

3.2. Participants

This research was conducted at the Humanities Faculty of Semnan University in Semnan and Farhangian University in Sari. The undergraduate students that partook in present research were 19-25 years old and were all native speakers of Persian. The experimental group was a class of 26 first-year students (10 male and 16 female students) of English literature at Semnan University. The control group, was a class of 33 first-year male students of TEFL at Farhangian University. In Table 1 below can be found the demographic information of participants:

Table 1 *Demographic Information of Participants*

	number	**gender**	**age**	**major**	**University**
Experimental group	10	Male	19-25	English literature	Semnan University
	16	Female			
Control group	33	Male	19-25	TEFL	Farhangian University

3.3. Pretest and Post-test

To evaluate students' reading comprehension proficiency level at the inception of the treatment and to monitor their progress at the completion, a pretest and a post-test were given to students. Both tests were the reading section of previously held TOEFL iBT exams. Since the tests were an excerpt of a whole TOEFL iBT exam, the reliability of both tests was calculated, .53 for the pretest and .88 for the post-test, which is presented in Table 2 below. The pretest and the post-test were chosen from a plethora of tests, those which employed all the six skills concerned in this study, from the Educational Testing Service (2017) and Educational Testing Service (2015), respectively.

Table 2 *KR-21 Reliability Indices for Pre- and Post-test of Reading*

	Number of Items	Minimum	Maximum	Mean	Std. Deviation	Variance	KR-21
Pretest	32	5	21	13.12	3.974	15.796	.53
Post-test	37	5	34	18.66	7.986	63.780	.88

3.4. Procedure

This research was carried out at Semnan and Farhangian Universities in Semnan and Sari, Iran. Students of both groups received six weeks of face-to-face instruction on reading skills, how to identify the skills, and finally how to answer the questions about the related skills after they took the pretest. Each of the six skills concerning this study was introduced and taught in a separate session. Students were given handouts containing exercises of the introduced skill to have the opportunity to practice the skills inside the classroom. The additional treatment for the experimental group was the online activities uploaded on Edmodo. During each week,

students were given passages of previous TOEFL exams with follow-up questions about the skill that was introduced in that week. Students would type their answers in the comment section. Close to the end of the sixth week, students were handed excerpts of the TOEFL exam reading comprehension section that would contain all of the skills concerned in this research. A post-test was intended to measure the effects of the treatments on both groups.

4. Results

The data analysis of this study was through multivariate analysis of covariance (MANCOVA), and non-parametric analysis of covariance (ANCOVA). Two sets of parametric and non-parametric tests were employed because some of the dependent variables violated the assumption of normality.

4.1. Exploring the First and Fourth Research Questions

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of identifying factual information of Iranian learners?

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of guessing vocabulary from context of Iranian learners?

A multivariate analysis of covariance (MANCOVA) was run to compare the experimental and control groups' means on post-tests of identifying factual information, and guessing vocabulary from context while controlling for the effects of their pretests. The descriptive statistics are displayed in Table 3. The results showed a higher mean for the experimental group (M = 5.70) than the control group (M = 3.83) on post-tests of finding factual information. Similarly, on post-tests of guessing vocabulary from context after controlling for the effect of pretest, a higher mean for the experimental group (M = 7.19) was acquired compared to the control group (M = 4.50).

Table 3 *Descriptive Statistics: Post-tests of Identifying Factual Information and Guessing Vocabulary from Context by Groups with Pretest*

Dependent Variable	Group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Post-test Factual	Experimental	5.706[a]	.323	5.058	6.354
	Control	3.838[a]	.283	3.271	4.404
Post-test Guessing	Experimental	7.198[a]	.317	6.563	7.833
	Control	4.506[a]	.277	3.951	5.061

a. Covariates appearing in the model are evaluated at the following values: Pretest Factual = 4.19, Pretest Guessing = 5.39.

Table 4 exhibits the main results of MANCOVA. The results indicate:

A: The experimental group significantly outperformed the control group on post-test of identifying factual information ($F (1, 55) = 16.76$, $p < .01$[1], Partial $\eta^2 = .234$ representing a large effect size). Therefore, we can assume that the first null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of identifying factual information of Iranian learners" **was rejected**.

Table 4 *Tests of Between-Subjects Effects: Post-tests of Identifying Factual Information and Guessing Vocabulary from Context by Groups with Pretest*

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Group	Post-test Factual	39.000	1	39.000	16.760	.000	.234
	Post-test Guessing	80.953	1	80.953	36.275	.000	.397
Error	Post-test Factual	127.983	55	2.327			
	Post-test Guessing	122.742	55	2.232			
Total	Post-test Factual	1549.000	59				
	Post-test Guessing	2264.717	59				

B: The experimental group significantly outperformed the control group on post-test of guessing vocabulary from context (F (1, 55) = 36.27, p < .01, Partial η^2 = .397 representing a large effect size). Therefore, we can assume that the fourth null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of guessing vocabulary from context of Iranian learners" **was rejected**.

4.2. Exploring the Second Research Question

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of making inferences of Iranian learners?

Since assumption of normality was not retained in reading comprehension skill of making inferences, non-parametric ANCOVA was run to compare the experimental and control groups' means on post-test of making inferences after controlling for the effect of pretest. The descriptive statistics are displayed in Table 5. The results showed that the experimental group (M = 7.84) had a higher mean than the control group (M = 2.48) on post-test of making inferences.

Table 5 *Descriptive Statistics: Post-test of Making Inferences by Groups with Pretest*

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	7.849[a]	.348	7.152	8.546
Control	2.483[a]	.309	1.864	3.101

a. Covariates appearing in the model are evaluated at the following values: Pretest Inference = 1.78.

The results of the non-parametric ANCOVA (F (1, 57) = 122.96, p < .05, r = .826 representing a large effect size[2]) indicate a significant outperformance of the experimental group on the post-test of making inferences (Table 6). Therefore, we can assume that the second null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of making inferences of Iranian learners" **was rejected**.

Table 6 *Nonparametric Analysis of Covariance: Post-test of Making Inferences by Groups with Pretest*

F	t	DFH	DFE	P Value
122.960	11.089	1	57	.000

4.3. Exploring the Third Research Question

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of understanding the rhetorical purpose of the passage of Iranian learners?

Since assumption of normality was not retained in reading comprehension skill of understanding the rhetorical purpose of the passage, non-parametric ANCOVA was run to compare the experimental and control groups' means on post-test of understanding the rhetorical purpose of the passage after controlling for the effect of pretest. The descriptive statistics are displayed in Table 7. The results showed that the experimental group (M = 6.55) had a higher mean than the control group (M = 3.47) on post-test of understanding the rhetorical purpose of the passage.

Table 7 *Descriptive Statistics: Posttest of Understanding Rhetorical Purposes of Passage by Groups with Pretest*

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	6.557[a]	.446	5.665	7.450
Control	3.470[a]	.380	2.709	4.232

a. Covariates appearing in the model are evaluated at the following values: Pretest Rhetorical = 3.61.

The results of the non-parametric ANCOVA (F (1, 57) = 8.65, p < .05, r = .363 representing a moderate effect size) indicate a significant outperformance of the experimental group on the post-test of understanding the rhetorical purpose of the passage (Table 8). Therefore, we can assume that the third null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of understanding the rhetorical purpose of the passage of Iranian learners" **was rejected**.

Table 8 *Nonparametric Analysis of Covariance: Post-test of Understanding Rhetorical Purposes of Passage by Groups with Pretest*

F	t	DFH	DFE	P Value
8.654	2.942	1	57	.005

4.4. Exploring the Fifth Research Question

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of identifying referential relationships between the words in the passage of Iranian learners?

Since assumption of normality was not retained on this skill, non-parametric ANCOVA was run to compare the experimental and control groups' means on post-test of identifying referential relationships between the words in the passage after controlling for the effect of pretest. The descriptive statistics are displayed in Table 9. The results showed that the experimental group (M = 6.15) had a higher mean than the control group (M = 4.54) on post-test of this skill.

Table 9 *Descriptive Statistics: Post-test of Identifying Referential Relationships Between the Words by Groups with Pretest*

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	6.151[a]	.995	4.157	8.144
Control	4.548[a]	.883	2.780	6.316

a. Covariates appearing in the model are evaluated at the following values: Pretest Referential = 2.20.

The results of the non-parametric ANCOVA (F (1, 57) = 1.43, p > .05, r = .156 representing a weak effect size) indicate that there was not any significant difference between experimental

and control groups' means on the post-test of identifying referential relationships between the words in the passage (Table 10). Therefore, we can assume that the fifth null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of identifying referential relationships between the words in the passage of Iranian learners" **was supported**.

Table 10 *Nonparametric Analysis of Covariance: Post-test of Identifying Referential Relationships Between the Words by Groups with Pretest*

F	t	DFH	DFE	P Value
1.431	1.196	1	57	.236

4.5. Exploring the Sixth Research Question

Does Edmodo as an asynchronous ODF affect the English reading comprehension skill of inserting texts in the passage of Iranian learners?

Since assumption of normality was not retained on reading comprehension skill of inserting texts in the passage, non-parametric ANCOVA was run to compare the experimental and control groups' means on post-test of inserting texts in the passage after controlling for the effect of pretest. The descriptive statistics are displayed in Table 11. The results showed a higher mean for the experimental group (M = 6.65) than the control group (M = 2.63) on post-test of inserting texts in the passage.

Table 11 *Descriptive Statistics: Post-test of Inserting Text in Passage by Groups with Pretest*

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	6.654[a]	.454	5.743	7.564
Control	2.636[a]	.403	1.830	3.443

a. Covariates appearing in the model are evaluated at the following values: Pretest Inserting = 2.71.

The results of the non-parametric ANCOVA (F (1, 57) = 44.341, p < .05, r = .661 representing a large effect size) indicate a significant outperformance of the experimental group on the post-test of inserting texts in the passage (Table 12). Therefore, we can assume that the sixth null hypothesis as "Edmodo as an asynchronous ODF did not affect the English reading comprehension skill of inserting texts in the passage of Iranian learners" **was rejected**.

Table 12 *Nonparametric Analysis of Covariance: Post-test of Inserting Text in Passage by Groups with Pretest*

F	t	DFH	DFE	P Value
44.341	6.659	1	57	.000

5. Discussion

This study proposed the amalgamation of technology (Edmodo) with the traditional face-to-face mode of delivery to compensate for the time constraints in the curriculum and to improve students' language skills competencies namely reading competence. In line with (Pratama, 2015) the results reveal that Edmodo is an efficient ODF for students and teachers to improve reading comprehension skills. This is evident in the results of the statistically analysed data concerning the research inquiries. Results revealed the significant outperformance by the experimental group on the post-test of identifying factual information, making inferences,

understanding the rhetorical purpose of the passage, guessing vocabulary from context, and inserting texts (first, second, third, fourth, and sixth research questions respectively). Whereas the results showed a different outcome for the fifth research question in which no significant difference was seen in the mean scores of the two groups on the post-test of identifying referential relationships between the words in the passage.

The results, generally, show the positive effect of using Edmodo as an asynchronous ODF on the skills of reading comprehension in EFL learners in Iran. Four research questions out of six in current study showed a large effect size (first, second, fourth, and sixth research questions), one showed a moderate effect size (third research question), and the other showed a weak effect size (fifth research question). Therefore, a significant performance improvement in the experimental group was spotted in all of the research questions except the fifth one.

The first proposed reason for how the learners in the control group were outperformed by those in the experimental group is that the use of Edmodo allowed students' exposure to a wider range of texts with follow-up questions despite the time constraints imposed on the courses. Students in the experimental group not only had access to these resources, but there was also an equal chance for all and every one of the students to participate in the class activities (Brush et al., 2002). Reflective learners, those who delay answering in the presence of uncertainty until some possibilities have been considered (Kagan, 1966), will also not lag behind in class participation, as Sholihah and Retnanindyah (2019) stated, since they have more time to reflect before answering the questions. Moreover, they mentioned that it provided students access to the class in their free time or their time and place of convenience. Therefore, it can be assumed that students were most of the time in their best state of mind and emotion when participating in the online class. Finally, the Edmodo provides students with the opportunity to review and practice older materials shared with the class. This way, students would not have missed any of the sessions or materials.

As we have seen in the results, the fifth research question failed to show any significant difference among the two groups. This does not interpret as a failure for the experimental group to improve in this skill, since the comparison between the mean scores on post-test of this skill after controlling for the effect of pretest shows otherwise (mean on post-test of the experimental group = 6.15). In this skill, the experimental group did almost as good as in other skills but it was the good performance of the control group that resulted in the rejection of this research hypothesis. One cannot claim that Edmodo as an ODF does not affect the English reading comprehension skill of identifying referential relationships between the words in the passage of Iranian learners. The results imply that the effect of Edmodo on the mentioned skill is not significant in comparison to the customary face-to-face instruction.

There were also some other factors at play that could have impacted the results of this research, such as: difficulty in finding an adequate number of participants, limitation of the age range of the participants to 19-25 years, and not ensuring homogeneity since both groups were intact.

The results of the present research, consistent with other studies, confirm the applicability of Edmodo in reading instruction. Other research demonstrates the positive effect of online learning in teaching reading comprehension (Davidson-Shivers et al., 2000; Gao & Wong,

2008; Mohamad et al., 2012; Mohamad et al., 2013) and Akbari et al. (2021) even claim to have found the online instruction to yield the best result by a significant margin, followed by the blended instruction to be the second-best mode of delivery among the three, and at last, the traditional face-to-face teaching as the least effective in teaching reading comprehension. It should be borne in mind that purely online instruction is not applicable in many academic settings. Aside from current circumstances imposed by the Covid-19 pandemic, which will hopefully end in the near future, most universities worldwide are obliged to provide face-to-face education to their students. Moreover, many language learners still favour the corporeal attendance of the instructor and themselves inside the classroom. Pure online teaching can also be completely halted by technological constraints. Therefore, it is safe to say that online learning, with all its merits, cannot replace the other two modes of instruction, at least not for now.

Research on the effect of blended learning on the reading comprehension skill of learners (Behjat et al., 2012; Ghazizadeh & Fatemipour, 2017; Kheirzadeh & Birgani, 2018; Rad, 2018; Zahedi & Tabatabaei, 2015) also reveals a positive relationship among variables. Pratama's (2015) study in Indonesia, proves that Edmodo has a positive influence on the English language reading comprehension skills of students in a blended instruction format. Blended instruction of reading comprehension using Edmodo as an asynchronous online discussion forum, has proved to be valuable, especially at the times of quarantine. It is of great value for both learners and instructors to be able to rely on a platform that has been tested many times and was mostly successful.

5.1. Implications of the Study

Findings of this research can contribute to the acceptance and furthering the application of ODFs, in this case, Edmodo, for the English reading comprehension skills instruction in Iran. The positive effects of blended instruction and ODFs on the reading comprehension skill of the students have already been proven by previous research but the findings of current study endorse the applicability of such forums in improving the subskills of reading comprehension. English language instructors can replicate the method used in this study in order to enhance their teaching outcome and use the full potential of the learners' abilities. Educational policymakers and curriculum designers, according to the results of this research, can consider the potential of ODFs and, especially of Edmodo, to create a more dynamic environment for the teaching and learning of learners in Iran. Finally, this study helps English language learners to build up a positive attitude toward the use of ODFs in a blended learning environment and become familiarized with the unique features and unprecedented opportunities that technology is able to offer in the form of ODFs.

5.2. Suggestions for Further Research

While six weeks in this study was an adequate time period for learners to practice the targeted skills of reading comprehension, in some parts, the desired engagement of the students in online activities could not be observed during this time. Therefore, a replicate study which would last an entire term can be done to ensure the validity of the findings of present research. The number of the participants and their characteristics can also be rectified in a replicate research. The number of the participants, especially that of the experimental group, is advised to increase.

Also, the control group was comprised of only male students. It is better for the participants in both groups to share the same characteristics as much as possible.

Iranian EFL learners' reading comprehension skills were the concern of this study. Given the limitless potential of ODFs and blended instruction, most of which still remain untapped to this date, other research concerning other skills of the English language can be carried out to unveil the true potential of these technologies and their benefits for language learning and teaching.

6. Conclusion

This research makes contributions to the fields of applied linguistics and computer-assisted language learning. It defined many of the features formerly unaddressed in literature on the blended learning model, ODFs and Edmodo as an ODF. The evidence yielded by the quasi-experimental methodology which incorporated quantitative data, was not provided by previous studies. The research ascertained that using Edmodo as an ODF significantly affected the English reading comprehension skills of the Iranian EFL learners, thus showing applications of Edmodo in teaching and learning reading comprehension skills. This research, despite a few methodological limitations, has practical implications for language programs and teachers.

Notes

[1] The results, because of violation of assumption of homogeneity of variances, were tested at .01 levels.

[2] The r effect size was computed as; t*t / (t*t) + degree of freedom; and was tested using the following criteria; .10 = Weak, .30 = Moderate, and .50 = Large.

References

Afflerbach, P., Pearson, P. D., & Paris, S. G. (2008). Clarifying differences between reading skills and reading strategies. *The reading teacher*, *61*(5), 364-373.

Akbari, J., Tabrizi, H. H., & Chalak, A. (2021). Effectiveness of virtual vs. non-virtual teaching in improving reading comprehension of Iranian undergraduate EFL students. *Turkish Online Journal of Distance Education*, *22*(2), 272-283.

Anya. (2019). About. Retrieved September 17, 2020, from https://go.edmodo.com/about/

Armstrong, D. A. (2011). Students' Perceptions of Online Learning and Instructional Tools: A Qualitative Study of Undergraduate Students Use of Online Tools. *TOJET: The Turkish Online Journal of Educational Technology, 10*(3), 222-226.

Azizan, F. Z. (2010). Blended learning in higher education institution in Malaysia. In *Proceedings of regional conference on knowledge integration in ICT* Vol. 10, pp. 454-466.

Behjat, F., Yamini, M., & Bagheri, M. S. (2012). Blended learning: A ubiquitous learning environment for reading comprehension. *International Journal of English Linguistics*, *2*(1), 97.

Bower, B. L. & Hardy, K. P. (2004). From correspondence to cyberspace: Changes and challenges in distance education. *New Directions for Community Colleges, 2004(*128), 5-12.

Brush, A. J., Bargeron, D., Grudin, J., Borning, A., & Gupta, A. (2002). Supporting interaction outside of class: anchored discussions vs. discussion boards. In *Proceedings of the Conference on Computer Support for Collaborative Learning: Foundations for a CSCL Community* (pp. 425-434). International Society of the Learning Sciences.

Camarero, C., Rodríguez, J., & José, R. S. (2012). An exploratory study of online forums as a collaborative learning tool. *Online Information Review*, *36*(4), 568-586.

Davidson-Shivers, G., Muilenberg, L., & Tanner, E. (2000). Synchronous and Asynchronous Discussion: What Are the Differences in Student Participation? In *EdMedia+ Innovate Learning* (pp. 267-271). Association for the Advancement of Computing in Education (AACE).

Delacruz, S. (2013). Online reading response using Edmodo. *The Florida Reading Journal, 49* (2), pp. 9-12.

Delahunty, J. (2018). Connecting to learn, learning to connect: Thinking together in asynchronous forum discussion. *Linguistics and Education, 46*, 12-22. doi:10.1016/j.linged.2018.05.003

Durairaj, K., & Umar, I. N. (2015). A proposed conceptual framework in measuring social interaction and knowledge construction level in asynchronous forum among university students. *Procedia-Social and Behavioral Sciences, 176*, 451-457.

Dzubinski, L. (2014). Teaching presence: Co-creating a multi-national online learning community in an asynchronous classroom. *Online Learning, 18(*2).

Educational Testing Service. (2015). *Official TOEFL iBT tests* (2nd ed., Vol. 1). New York: McGraw-Hill Education.

Educational Testing Service. (2017). *The official guide to the TOEFL test* (5th ed.). New York: McGraw-Hill Education.

Gao, F., & Wong, D. (2008). Student engagement in distance learning environments: A comparison of threaded discussion forums and text-focused Wikis. *First Monday*, *13*(1). https://doi.org/10.5210/fm.v13i1.2018

Ghazizadeh, T., & Fatemipour, H. (2017). The effect of blended learning on EFL Learners' reading proficiency. *Journal of Language Teaching and Research*, *8*(3), 606. https://doi.org/10.17507/jltr.0803.21

Goertzen, P., & Kristjánsson, C. (2007). Interpersonal dimensions of community in graduate online learning: Exploring social presence through the lens of Systemic Functional Linguistics. *The Internet and Higher Education, 10*(3), 212-230. doi:10.1016/j.iheduc.2007.06.005

Grabe, W. (2012). *Reading in a second language moving from theory to practice*. Cambridge: Cambridge University Press.

Grabe, W. P., & Stoller, F. L. (2013). *Teaching and Researching: Reading*. Old Tappan: Taylor and Francis.

Hourdequin, P. (2014). Edmodo: A Simple Tool for Blended Learning. The language Teachers. *Japan Association for Language Teaching*, 38.

Kagan, J. (1966). Reflection-impulsivity: The generality and dynamics of conceptual tempo. *Journal of abnormal psychology*, *71*(1), 17.

Kheirzadeh, S., & Birgani, M. B. (2018). Exploring the effectiveness of blended learning in improving reading comprehension among Iranian EFL students. *Journal of Applied Linguistics and language research*, *5*(1), 106-120.

Kongchan, C. (2012). *How a non-digital-native teacher makes use of Edmodo.* Retrieved from www.conference.pixel-online.netf

Kongchan, C. (2013). *How Edmodo and google docs can change traditional classrooms.* Paper presented at The European Conference on Language Learning 2013 Official Conference Proceedings. Retrieved from www.iafor.org

Lim, D. H., & Morris, M. L. (2009). Learner and instructional factors influencing learning outcomes within a blended learning environment. *Journal of Educational Technology & Society*, *12*(4), 282-293.

Lim, D. H., Morris, M. L., & Kupritz, V. W. (2007). Online vs. blended learning: Differences in instructional outcomes and learner satisfaction. *Journal of Asynchronous Learning Networks*, *11*(2), 27-42.

Mohamad, M., Hussin, S., Amir, Z., Yaacob, A., Kummin, S., & Zahidi, A. (2012). The Use of Asynchronous Forum to Enhance Reading Comprehension of Distance Learners. *Asian Social Science*, *8*(15), 124-135. doi:10.5539/ass.v8n15p124

Mohamad, M., Omar, A., & Mansor, A. Z. (2013). Asynchronous Forum as a Discussion Tool in a Preparatory Reading Course for First Year Distance Learners. *Asian Social Science*, *9*(13), 53-62. doi:10.5539/ass.v9n13p53

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *The American Journal of Distance Education*, *16*(2), 99-113.

Petrides, L. A. (2002). Web-based technologies for distributed (or distance) learning: Creating learning-centered educational experiences in the higher education classroom. *International journal of instructional media*, *29*(1), 69-77.

Phillips, D. (2015). *Longman preparation course for the TOEFL iBT test*. White Plains, NY: Pearson Education.

Pratama, E. Y. (2015). The implementation of blended learning method using Edmodo (a social networking site) in teaching reading comprehension. In *International Conference on Language, Literature, Culture, & Education. Kuala Lumpur, Malaysia*.

Rad, M. R. (2018). The effect of Moodle-mediated instruction on the reading comprehension of Iranian EFL Learners. *International Journal of Advanced Multidisciplinary Scientific Research*, *1*(3), 70-78. https://doi.org/10.31426/ijamsr.2018.1.3.136

Salmon, G. (2005). Flying not flapping: a strategic framework for e-learning and pedagogical innovation in higher education institutions. *ALT-J, Research in Learning Technology*, *13*(3), 201-218.

Salmon, G., & Angood, R. (2013). Sleeping with the enemy. *British Journal of Educational Technology*, *44*(6), 916-925. doi:10.1111/bjet.12097

Salter, N. P., & Conneely, M. R. (2015). Structured and unstructured discussion forums as tools for student engagement. *Computers in Human Behavior*, *46*, 18-25.

Salter, S., Douglas, T., & Kember, D. (2017). Comparing face-to-face and asynchronous online communication as mechanisms for critical reflective dialogue. *Educational Action Research*, *25*(5), 790-805.

Sharma, P., & Barrett, B. (2008). *Blended learning: Using technology in and beyond the language classroom*. Stuttgart: Macmillan.

Sholihah, I., & Retnanindyah, P. (2019). The reading based instruction to foster learner autonomy in an EFL-learning community. *Journal of Education and Development*, *7*(2), 50-54.

Sife, A., Lwoga, E., & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International journal of education and development using ICT*, *3*(2), 57-67.

Thomas, E. V. & Biriyai, A. H. (2014). Online discussion forum: A tool for effective student-teacher interaction. *International Journal of Applied Science- Research and Review*, *1(*3), 111-116.

Thongmak, M. (2013). Social network system in classroom: antecedents of Edmodo© adoption. *Journal of E-learning and Higher Education*, *2013*(1), 1-15.

Urquhart, A. H., & Weir, C. J. (1998). *Reading in a second language: Process, product and practice*. New York: Longman.

Warawudhi, R. (2017). The Evaluation of Edmodo in Business Reading Class. *International Journal of Information and Education Technology*, *7*(2), 153-158. doi:10.18178/ijiet.2017.7.2.858

Wegerif, R. (2013). *Dialogic: Education for the internet age*. London: Routledge.

Whittaker, C. (2013). Introduction. In B. Tomlinson, *Blended learning in English language teaching: course design and implementation* (pp. 11-23). London: British Council.

Wikle, J. S., & West, R. E. (2019). An analysis of discussion forum participation and student learning outcomes. *International Journal on E-Learning* 18(2): 205–28.

Williams, E., & Moran, C. (1989). Reading in a foreign language at intermediate and advanced levels with particular reference to English. *Language Teaching*, *22(*4), 217-228.

Yagci, T. (2015). Blended Learning via Mobile Social Media & Implementation of "Edmodo" in Reading Classes. *Advances in Language and Literary Studies*, *6*(4), 41-47. doi:10.7575/aiac.alls.v.6n.4p.41

Zahedi, Z., & Tabatabaei, O. (2015). The effect of blended teaching on reading strategy use by Iranian EFL learners. *International Journal of Foreign Language Teaching and Research*, *3*(11), 25-38.

Zarei, A., & Pedram, S., J. (2018). *Reading micro skills: Does gender make a difference?* Scholars' Press.