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Original Article

The Effect of Interventionist Dynamic Assessment through WhatsApp and Bigbluebutton on Learning Grammar by Iranian EFL Learners

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Abstract

Dynamic assessment (DA) is an effective strategy to combine teaching and testing and it is even more enjoyable through digital devices such as computers and moblie devices. The purpose of the current study was to investigate whether the effect of interventionist dynamic assessment through WhatsApp, Bigbluebutton, and face-to-face classes had significant impacts on English as a foreign language (EFL) learners' learning of grammar. The participants of this quasi-experimental study were seventy-five intermediate EFL learners studying English in one of the English language institutes in central Iran. Three intact pre-intermediate level classes were chosen based on non-random convenience sampling and assigned to the three groups of WhatsApp, Bigbluebutton, and traditional groups. The instruments that were used in this study were the Oxford Quick Placement Test (OQPT) and a multiple-choice grammar test. Throuout the course of six sessions, all three groups received interventionist DA strategies in teaching countable and uncountable nouns and determiners. The results of statistical data analysis showed that all three groups had significantly progressed over the study since there was a significant difference between the pretest and posttest scores of each group. However, no statistically significant differences were found among the three groups' means on the posttest of grammar. The findings have implications for language teachers and researchers of second language acquisition.

Keywords

Bigbluebutton; grammar; interventionist dynamic assessment; WhatsApp; zone of proximal development.

Introduction

development The study of grammar has long been in the spotlight in the history of second language and foreign language teaching. For centuries, knowing a language meant to know the syntactic structures of that language, and the study of grammar was not just considered an essential feature of language learning, but was thought to be adequate for learners to really learn another language [1]. As Samarxhiu and Kurani [2] stated, "Without grammar it is impossible to communicate beyond a specified level" (p. 73).

The field of second language acquisition (SLA) has witnessed a growing interest among researchers and practitioners in applying the principles of sociocultural theory for teaching and assessing different aspects of the English language to EFL learners. Despite the importance of interventionist dynamic assessment (IDA) in teaching language skills and components [3], not many studies are conducted to investigate the use of DA to teach grammar through different

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platforms. In fact, although few studies have addressed the use of DA through technology in teaching language skills [4,5,6], there are some gaps in the literature. Therefore, this study tried to fullfil the following objectives. The first was to find out if using IDA through WhatsApp in teaching grammar would have a significant impact on EFL learners' learning of grammar or not. Another was to see whether using IDA through the platform Bigbluebutton would be useful for teaching grammar to EFL learners or not. Finally, it aimed to make comparisons among the three methods of input delivery (i.e., WhatsApp, Bigbluebutton, and face-to-face classes) to find out whether there were any significant differences regarding the effect of IDA in teaching English grammar to Iranian EFL learners. This study specifically attempted to respond to the three research questions listed below:

RQ1: Is there any statistically significant difference between the pretest and the posttest performance of the WhatsApp group?

RQ2: Is there any any statistically significant difference between the pretest and posttest performance of the Bigbluebutton group?

RQ3: Is there any any statistically significant difference between the pretest and posttest performance of the face-to-face group?

RQ4: Are there any statistically significant differences among the WhatsApp, Bigbluebutton, and face-to-face classes on learning grammar by pre-intermediate Iranian EFL learners?

Literature Review

As a method of integrating teaching and assessment, dynamic assessment (DA) has attracted the attention of many researchers [7]. DA argues that instruction and evaluation should not be viewed as distinctly separate entities [8; 9; 10]. The focus in DA is on the process instead of the product of learning [11]. DA methods unwind learners' autonomous and dependent working through the quality of mediations in a collaborative setting of the mediator–learner's interaction extending from standardized clues to dialogic interaction [12; 13]. What is emphasized in DA is the intervention as DA consolidates instruction and assessment within the shape of an agreeable action [14; 15]. There are three differences between static testing and DA. First, static testing focuses on past development, while DA deals with ongoing development. Second, in static tests, examiners provide little or no feedback on learners' performance to avoid undermining the reliability of the test. In contrast, during the DA process mediated feedback is provided directly or indirectly, depending on the learner's needs and current developmental stage [16]. The fundamental difference between the two approaches is whether the assessment should be explicit to modify the student's performance during the assessment itself [9].

Technology plays an essential part in language instruction due to its viability and versatility [17; 18]. Technology empowers self-initiated development of learning and helps language learners participate in self-directed learning [19; 20]. The exponential development of technology from the early net to multi-faceted computerized gadgets has been intriguing [21]. Hence, distance language instruction has advanced to a great extent in line with the advances in technology [22]. Investigating the use of technology for language learning has taken numerous ways, extending from how learners and instructors are connected with advanced instruments to how these devices can impact the learning of language proficiency in and out of classroom spaces [4; 23; 24; 25].

Among different online media used in distance education, WhatsApp is considered the most effortless, most prevalent, and successful device that can be possessed by language instructors and learners [26; 27]. It has contributed to the advancement of language learning and encouraged the development of unstructured, anytime-anywhere instruction [28; 29]. However, Bigbluebutton is commonly listed among the foremost prevalent web conferencing applications. It is an open-source, web-based, synchronous conferencing instrument that gives virtual spaces

for real-time sharing of sound, video, slides, chat, and screen sharing [22; 30; 31; 32].

Several studies have been done to investigate the effect of DA on language learning. Amirian, Noughabi, and Zareian [8] designed a study to examine the possibility of simultaneous group DA (G-DA) in expanding receptive and productive vocabulary to 56 Iranian Advanced EFL Learners. They found that the experimental group, which was provided with group-based support prompts for vocabulary learning within the framework of G-DA, outperformed the control group.

In another study, Hidri [33] proposed and investigated a DA of a listening test to review and improve current ratings of the EFL learners' listening comprehension in a college. Qualitative data analysis indicated that although the new assessment provided better insights into learners' cognitive and meta-cognitive processes than did the traditional assessment, raters were doubtful about the value of and processes involved in DA mainly because they were unfamiliar with it. Yang and Qian [15] put computerized DA under research. They used computerized DA as a teaching and assessment method to improve Chinese EFL learners' reading comprehension, with a quasi-experimental design in which the control and experimental groups were each given three tests but in different settings. The results showed that although reading comprehension performance in the two groups was quite similar at the beginning of the study, the experimental group performed significantly more efficiently than the control group after four weeks of learning

Recently, Ghahderijani, Namaziandost, Tavakoli, Kumar, and Magizov [6] attempted to check the impact of two DA models on speaking. To achieve the goals of this research, a convenience sample of 90 upper-intermediate male EFL learners that were assigned into group DA, a computerized DA, and a non-DA control group participated in the study. Data analysis showed that the computerized DA and G-DA could significantly increase speaking more than conventional non-DA instruction. At the same time, the computerized DA was significantly better than group DA. The results of this research suggested that implementing DA, especially computerized DA, can enhance the speaking skill of the L2 learners.

Given the preceding background and literature, DA models in general and GDA and C-DA models, in particular, have not been employed for teaching language and proved their effectiveness. Therefore, the current empirical study was conducted to investigate the impact of IDA through Whatsapp and Bigbluebutton on garmmer learning because of the dearth of research in this regard.

Methodology

Design

The purpose of this study was to investigate the three following objectives. This part contains information on the design of the study, the participant and how they are selected, the instructional materials used in this study, the data collection instruments (such as the proficiency test, the pretest, and the posttest), the data collection procedure of the study, and the data analysis of the study. This study with a pretest-posttest, nonequivalent-groups design was a quasi-experimental study [34] since random sampling was not possible in the current study. To be more exact, an available sample of EFL learners was assigned to three groups: a WhatsApp group, a Bigbluebutton group, and a Traditional group. Grammar was the dependent variable of this study since to some extent, changed throughout the procedure of the study. Also, there were four independent variables in this study (i.e., interactionist DA, Whatsapp, Bigblubutton, & face to face teaching).

Participants

The participants of the present study were male intermediate EFL learners studying English in

one of the English language institutes in Qom, Iran. Their ages ranged from 11-17 years old. They were selected from a larger group of intermediate learners. The participants of the study were 80 students that were reduced for homogeneity. For this reason, an OQPT was administered to them to choose the homogeneous students. The participants of the study were selected based on non-random convenience sampling as random selection of the learners in a language school was not feasible for the researcher [34].

Instruments

The instruments that were used in this study are the OQPT, the pretest of grammar, and posttest of grammar. These three instruments as well as the instructional materials which were used are described in what follows. The grammar that was taught to the learners was chosen from the book Top Notch 1A (3rd ed.) by Saslow and Ascher [35]. This book includes 5 units in which there are all the skills plus pronunciation and grammatical points. Each unit contains 1 or 2 specific grammatical points and is followed by some practices called "grammar practice".

The OQPT [36] was used to check the homogeneity of the learners in terms of their overall language proficiency. The OQPT [36] is an internationally-recognized and widely-used test used by many researchers to determine the proficiency level of EFL/ESL learners. It includes 60 multiple-choice questions triggering the learners' knowledge. It contains vocabulary, cloze test, and grammar items and also a scoring rubric at the end of the test to help determine the level of proficiency of the research participants. The reliability index of the OQPT calculated through Cronbach's alpha was 0.84 which was acceptable for the current study.

The second testing instrument of the study was a pretest for checking the triggered grammatical knowledge of the participants before the beginning of the treatment. This test contained 40 multiple-choice items in which the participants had to choose the correct response. These items were chosen from the book grammar digest by Aronson [37]. The test was piloted to check the reliability through Chronbach's alpha method of estimating reliability and it was found that the reliability was .77. Therefore, the test was considered acceptable. The content validity of the test was approved by three TEFL professors. The posttest was similar to the pretest in terms of the number of items and their content, with the only difference being that the order of presentation of the items and options was altered to prevent the practice effect on the performance of the learners on the posttest.

Procedures

The following stages were executed to administer this research:

1-The first step of the present study was to ask for permission from the manager of the language institute to conduct the study in that institute. After that, 3 classes at the pre-intermediate level were chosen and assigned to the three groups of WhatsApp group, Bigbluebutton group, and the traditional group. Each group consisted of 19 students.

2-Then for the homogeneity of the learners in terms of their overall language proficiency, The OQPT was administered to the learners of the study and those whose scores were not in the 24-39 range were excluded from the study since they were not considered as pre-intermediate students. Those whose scores were not in the 24-39 range were in the class and received treatment but their scores were not included in the process of data analysis. The treatment was implemented in 6 sessions to which 75 minutes was allocated. In addition to 6 treatment sessions, 2 sessions were dedicated to the pretest and posttest. The participants of the study attended the classes twice a week so that the research was done and the needed scores were obtained in 1 month.

3-The next step of the study was the administration of the pretest to all groups to check their level of the targeted grammatical forms (countable-uncountable nouns and determiners) at the

beginning of the study. After the pretest session was done, the treatment was given to the 3 groups while they were studying the book Top Notch 1A, for 6 sessions. The treatment was based on Lantolf and Poehner [10] in terms of the model of DA, which included the following interactive steps:

- Pause (the most implicit)
- Repeat the whole phrase questioningly
- Repeat just the part of the sentence with the error
- Teacher points out that there is something wrong with the sentence. Alternatively, s/he can pose this as a question, what is wrong with that sentence?
- Teacher points out the incorrect word
- Teacher asks either/or question
- Teacher identifies the correct answer
- Teacher explains why (the most explicit)

4- A group was created for the learners in the WhatsApp group so they received the grammar through the group that was created in WhatsApp. The grammar was taught to the students through interactions like voices, pictures, videos, and texts. Chatting was allowed for a specific period and the teacher sent specific questions about the book to the group (as the practice and homework) to see how well the students learned the grammar. The answers had to be sent to the teacher's PV. The general errors were dealt with through questions and voices in which implicit instruction is given instead of clear answers.

5- For the Bigbluebutton group, without the physical appearance of the students, but with aural and visual features with the help of the website, the grammar was taught and then the students had to do the practices and they were given homework for the next session. General errors during the instruction and after doing the homework were dealt with in the class by verbal and written interaction in the public chat part and on the whiteboard.

6- For the traditional group, a specific part of grammar was taught deductively using the DA strategies with the physical appearance of the students. Then they did the related practices and the teacher assigned homework for the next session. While doing the practices and afterward, on the next session the teacher used DA strategies to deal with general errors in a negotiated way in which the teacher led the students to their potential grammatical ability.

7- Finally, the posttest was given to the participants to check the effect of using DA strategies in teaching grammar on different platforms.

8- In the process of data analysis, the aim was to investigate any statistically significant differences among the three groups' performance on the pretest and posttest of grammar. It also aimed to investigate any significant differences between the three groups' means on the posttest of grammar after controlling for the effect of the pretest. Therefore, the statistical methods of Paired-Samples t-test and One-Way Analysis of Covariance (One-Way ANCOVA) were employed to analyze the data collected through this study. The normality of the data was the core assumption of these statistical methods.

Results

Normality of the Data

The purposes of the present study were to investigate any statistically significant difference between each of the three groups (i.e., WhatsApp, Bigbluebutton, and face-to-face groups) performance on the pretest and the posttest of grammar. Initially, the assumption of normality was checked (Table 1).

Table1. Skewness and Kurtosis Indices of Normality

Group		N	Skewness			Kurtosis		
		Statistic	Statistic	Std. Error	Ratio	Statistic	Std. Error	Ratio
WhatsApp	Pretest	19	-.467	.524	-0.89	-.086	1.014	-0.08
	Posttest	19	-.791	.524	-1.51	.190	1.014	0.19
Bigbluebutton	Pretest	19	-.413	.524	-0.79	.110	1.014	0.11
	Posttest	19	-.616	.524	-1.18	-.403	1.014	-0.40
Control	Pretest	19	-.869	.524	-1.66	.443	1.014	0.44
	Posttest	19	-.793	.524	-1.51	1.244	1.014	1.23

As shown in Table 4.1, it can be claimed that the assumption of normality was retained because the skewness and kurtosis indices and their ratios over the standard errors computed ratios are within the ranges of ±1.96.

Testing The First Null Hypothesis

A paired-samples t-test was run to compare the WhatsApp group's means on the pretest and the posttest of grammar learning in order to probe the first null hypothesis (i.e., There is not any statistically significant difference between the pretest and the posttest performance of the Whatsapp group.). Table 4.2 shows the WhatsApp group's means on the pretest and the posttest of grammar.

Table 2. Descriptive Statistics Pretest and Posttest of WhatsApp Group

		Mean	N	Std. Deviation	Std. Error Mean
Grammar Learning	Posttest	14.736	19	1.790	.410
	Pretest	13.421	19	2.090	.479

Based on these results it can be claimed that the WhatsApp group had higher mean on the posttest of grammar learning (M = 14.73, SD = 1.79) than the pretest (M = 13.42, SD = 2.09). Table 4.3 displays the results of the paired-samples t-test. The results indicated that the WhatsApp group had a significantly higher mean on the posttest of grammar learning than the pretest with a large effect size, t (18) = 4.59, p < .05, r = .734. Thus, the first null hypothesis (i.e., there was not any statistically significant difference between the pretest and the posttest performance of WhatsApp group.) was rejected.

Table 3. Paired-Samples t-test Pretest and Posttest of WhatsApp Group

Paired Differences					T	df	Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
1.315	1.249	.286	.713	1.918	4.59	18	.000

Testing the Second Null Hypothesis

A paired-samples t-test was run to compare the Bigbluebutton group's means on the pretest and the posttest of grammar learning in order to probe the second null hypothesis (i.e., There is not any statistically significant difference between the pretest and the posttest performance of the Bigbluebutton group.). Table 4. shows the Bigbluebutton group's means on the pretest and the posttest of grammar.

Table 4. Descriptive Statistics Pretest and Posttest of Bigbluebutton Group

	Mean	N	Std. Deviation	Std. Error Mean

Grammar Learning	Posttest	15.210	19	2.370	.543
	Pretest	14.052	19	2.222	.509

Based on these results, it can be claimed that the Bigbluebutton group had a higher mean on the posttest of grammar learning (M = 15.21, SD = 2.37) than the pretest (M = 14.05, SD = 2.22). Table 5 displays the results of the paired-samples t-test.

Table 5. Paired-Samples t-test Pretest and Posttest of Bigbluebutton Group

Paired Differences						
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
			Lower	Upper			
1.157	1.384	.317	.490	1.825	3.644	18	.002

The results indicated that the Bigbluebutton group had a significantly higher mean on the posttest of grammar learning than the pretest with a large effect size, t (18) = 3.64, p < .05, r = .651. Thus, the second null hypothesis (i.e., there was not any statistically significant difference between the pretest and posttest performance of Bigbluebutton group.) was rejected.

Testing the Third Null Hypothesis

A paired-samples t-test was run to compare the face-to-face group's means on the pretest and the posttest of grammar learning in order to probe the third null hypothesis (i.e., There is not any statistically significant difference between the pretest and posttest performance of face-to-face group.). Table 3. shows the face-to-face group's means on the pretest and the posttest of grammar. Based on these results it can be claimed that the face-to-face group had higher mean on the posttest of grammar learning (M = 15.57, SD = 1.89) than pretest (M = 13.26, SD = 1.82).

Table 6. Descriptive Statistics Pretest and Posttest of Face-to-Face Group

		Mean	N	Std. Deviation	Std. Error Mean
Grammar Learning	Posttest	15.578	19	1.894	.434
	Pretest	13.263	19	1.820	.417

Table 7. displays the results of the paired-samples t-test. The results indicated that the face-to-face group had a significantly higher mean on the posttest of grammar learning than the pretest with a large effect size, t (18) = 5.61, p < .05, r = .798.

Table 7. Paired-Samples t-test Pretest and Posttest of Face-to-Face Group

Paired Differences					T	df	Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
2.315	1.796	.412	1.449	3.181	5.618	18	.000

Thus, the third null hypothesis (i.e., there was not any statistically significant difference between the pretest and posttest performance of face-to-face group.) was rejected.

Investigating The Fourth Null Hypothesis

One-Way ANCOVA was run to test the fourth null hypothesis (i.e., There are not any statistically significant differences among the WhatsApp, Bigbluebutton, and face-to-face

classes on learning grammar by pre-intermediate Iranian EFL learners.). Besides the assumption of normality which was covered in Table 1, One-Way ANCOVA also assumes that;

- There is a linear relationship between the dependent variable (posttest of grammar) and covariate (pretest); i.e., linearity,
- The linear relationship between the dependent variable and covariate holds true across the three groups; i.e., homogeneity of regression slopes; and finally,
- Groups enjoy homogeneous variances on posttest of grammar after controlling for the effect of pretest; i.e., homogeneity of variances.

First, one-way ANCOVA requires that there should be a linear relationship between the pretest and the posttest of grammar. The significant results of the linearity test rejected the statistical null hypothesis that the relationship between the dependent variable and covariate was not linear with a large effect size, F (1, 56) = 55.96, p < .05, eta squared = .580 (Table 8.). In other words, there was a linear relationship between the two variables.

Table 8. ANOVA Test of Linearity Between Pretest and Posttest of Grammar

			Sum of Squares	df	Mean Square	F	Sig.
Posttest * Pretest	Between Groups	(Combined)	133.428	9	14.825	7.197	.000
		Linearity	115.287	1	115.287	55.966	.000
		Deviation from Linearity	18.141	8	2.268	1.101	.380
	Within Groups		96.817	47	2.060		
	Total		230.246	56			
	Eta Squared		.580				

Second, one-way ANCOVA requires that the linear relationship between pretest and posttest of grammar holds true across the three groups; i.e., homogeneity of regression slopes. The non-significant interaction between covariate (pretest), and the independent variable indicated that the statistical null hypothesis that the relationship between pretest and posttest of grammar was non-linear across the three groups was rejected with a weak effect size, F (1, 51) = .978, p > .05, partial eta squared = .037. In other words, there were linear relationships between pretest and posttest of grammar across the three groups.

Table 9. Testing Homogeneity of Regression Slopes

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Group	5.355	2	2.677	1.367	.264	.051
Pretest	110.107	1	110.107	56.239	.000	.524
Group * Pretest	3.828	2	1.914	.978	.383	.037
Error	99.851	51	1.958			
Total	13357.000	57				

And finally, one-way ANCOVA requires that the variances of the groups be roughly equal on the posttest of grammar after controlling for the effect of pretest (i.e., the assumption of homogeneity of variances). The non-significant results of Levene's test indicated that the assumption of homogeneity of variances was retained, F (2, 54) = .716, p > .05.

Table 10. Levene's Test of Equality of Error Variances Posttest of Grammar by Groups with Pretest

F	df1	df2	Sig.

.716	2	54	.493

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

After discussing the assumptions associated with one-way ANCOVA, the main results will be reported below. These results include descriptive statistics, the main results of one-way ANCOVA, and the post-hoc comparison tests. Table 11. shows the means for the three groups on the posttest after controlling for the effect of the pretest. The results showed that the face-to-face group (M = 15.80, SE = .322) had the highest mean posttest of grammar after controlling for the effect of the pretest. This was followed by the Bigbluebutton (M = 14.86, SE = .32), and WhatsApp (M = 14.85, SE = .32) groups.

Table 11. Descriptive Statistics Posttest of grammar by Group with Pretest

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
WhatsApp	14.851[a]	.321	14.207	15.496
Bigbluebutton	14.867[a]	.324	14.217	15.516
Control	15.808[a]	.322	15.162	16.454

a. Covariates appearing in the model are evaluated at the following values: Pretest = 13.5789.

Table12. shows the main results of one-way ANCOVA. The results, representing a moderate effect size, indicated that there were not any significant differences between the three groups' means on posttest of grammar after controlling for the effect of pretest, F (2, 53) = 2.88, $p > .05$, partial $\eta^2 = .098$. Thus, the second null hypothesis (i.e., there are not any statistically significant differences among WhatsApp, Bigbluebutton, and face to face classes on learning grammar by pre-intermediate Iranian EFL learners.) was supported.

Table 12. Tests of Between-Subjects Effects; Posttest of Grammar by Groups with Pretest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	119.795	1	119.795	61.239	.000	.536
Group	11.280	2	5.640	2.883	.065	.098
Error	103.679	53	1.956			
Total	13357.000	57				

Discussion and Conclusion

The purpose of the present study was to investigate any statistically significant difference between each of the three groups (i.e., WhatsApp, Bigbluebutton, and face-to-face) performance on the pretest and the posttest of grammar. It aimed to investigate if there were any significant differences between the three groups' means on the posttest of grammar after controlling for the effect of the pretest. This chapter includes some final considerations mostly about the results of this study. At first, a summary of the research findings is restated and they are compared and contrasted with the results of similar studies. Then, implications of the study are addressed to understand the effectiveness of this research for specific groups. After that, some problems, namely implications that the researcher faced during the study are stated. And finally, there are some suggestions for future studies related to the current title for researchers who want to work in the field of DA and technology.

Discussion

As mentioned earlier the first question tried to examine the effect of dynamic assessment through Whatsapp, bigblubutton and face to face classes on learning grammar by pre-intermediate Iranian EFL learners. The results of the first group indicated that the WhatsApp

group had a significantly higher mean on the posttest of grammar learning than the pretest. The results of the second group indicated that the Bigbluebutton group had a significantly higher mean on the posttest of grammar learning than pretest. The results of the third group indicated that the face-to-face group had a significantly higher mean on the posttest of grammar learning than the pretest.

The results of the first question are in line with Amirian, Noughabi, and Zareian [8]; Rashidi and Bahadori Nejad [11]; Bakhoda and Shabani [12]; Birjandi, Estaji, and Deyhim [38]; Rassaei (2021); Kazemi and Tavassoli [14]; Ghahderijani, Namaziandost, Tavakoli, Kumar, and Magizov [6]; Ahmadi Safa, Donyaie, and Malek Mohammadi [39]. All the mentioned researches used different kinds of DA to examine its effect on different language skills and subskills. The results were in line with this study because they followed a specific pre-designed procedure closely similar to this study. In addition, the use of technology (mobile devices or computer devices) caused the results to be similar.

The second question attempted to examine the effect of dynamic assessment on posttest performances through Whatsapp, bigblubutton and face to face classes on learning grammar by pre-intermediate Iranian EFL learners. The results indicated that there were not any significant differences between the three groups' means on posttest of grammar after controlling for the effect of pretest. Thus; the second null hypothesis as not any statistically significant differences among WhatsApp, Bigbluebutton, and face-to-face classes on learning grammar by pre-intermediate Iranian EFL learners was supported.

The results of the second question are in line with Suardika, Alberth, Mursalim, Siam, Suhartini, and Pasassung [40]; and Guler [41]. They used WhatsApp and a conventional setting, like this study, to examine the effect of WhatsApp. Both groups experienced an equal level of teaching in terms of number of the sessions and covered content. That is because they used the same instruments as this study and their technological tool was the same. The only difference is the number of groups for this study the researcher exploited three groups while the aforementioned study had 2 groups. The efficient use of WhatsApp application can cause similar results in similar studies since it has all the features of a suitable digital learning platform.

The results of the second question are also in line with Kazemi and Tavassoli [14] because the procedure of both studies is similar. Both studies had 3 groups under study and had 2 DA groups in addition to 1 traditional group. The participants were given the same three grammar tests and feedback on their problems. The data analysis also was the same between the current study and this research and as a result, the difference in the progress of posttests was not significant.

The results of the second question are against Amirian, Noughabi, and Zareian [8]; Rashidi and Bahadori Nejad [11]; Birjandi, Estaji, and Deyhim [38]; and Rassaei [42]. Parts of the results of these studies were in line with the results of the first question of this study; however, the other part of their results were not in line with the result of the second question of this study. The reasons behind these contraries are as follows. First, the infrastructure of using digital devices and tools in educational settings in Iran is new to the field and there is still so much work to accomplish in this area. Second, lack of digital literacy is another important reason that prevents learners from fully focusing on their studies and learning procedure. Despite prior explanations, some learners were unfamiliar with the features and options of the 2 online platforms (i.e., WhatsApp and Bigbluebutton). Finally, similar researches have different results because some of them used computerized DA with a different website or platform [6], or the writers utilized different types of DA for example interactionist DA or group DA [8; 45].

Implications

The results of the current study would be a great help to EFL learners, teachers, materials

developers, and testers. The current study has important implications for language teachers regarding the potential of smartphones and online platforms for L2 instruction. One implication of the present study is promoting the use of mobile learning in various forms including mobile-mediated DA for teaching various L2 features including grammar in language education. A second important implication of the present study is also for teachers to consider and contrast the results of different ways of teaching through traditional and modern settings.

As in dynamic assessment, useful strategies were used to work on the participants' grammatical ability, if students are careful enough, they can learn those strategies and use them to help their progress. The insight from this study also explained that learners feel better about assessments because with DA and the use of technology, assessment and teaching are not done in a traditional way and they can experience a more collaborative medium of instruction.

Conclusion

In sum, the findings of the present study provided evidence for the effects and benefits of digital and traditional DA for teaching grammar to EFL learners. The results also revealed that by doing this research, it is hoped that some contribution is made to the development of language teaching and testing. The DA framework considered in this study was one of the most important approaches that accentuated the whole process of grammar practices, especially those 8 steps, and the activities related to them that are usually neglected in EFL contexts. In conclusion, it can be said that dynamic assessment with its predictable nature tries to recognize that learners are struggling. It also provides suitable information about the problem source, development, and transcendence ability of learners to help teachers in designing more efficient remedial courses, which, based on Lantolf and Poehner [10], is the ultimate purpose of education.

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