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Digital Game-based Activities as a Predictive Power of Iranian EFL Learners' Willingness to Communicate and Cooperate

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Abstract

Gamification is an innovative pedagogical approach where digital games are used in an educational setting which provides tools to consider the instructions from the engagement aspects. Accordingly, since language classes are not always attractive for learners, instructors are looking for new strategies and techniques to provide opportunities to increase learners' communication and cooperation skills in classrooms. Therefore, nowadays, teachers try using gamification tools to enhance learners' communication skills. In this case, the present study aimed to investigate the effect of gamification, as one of the motivating ways, on Iranian EFL learners' willingness to communicate and cooperate. A total of 50 Iranian intermediate EFL learners were chosen through convenience sampling and categorized into two groups (experimental and control groups). The classes were held online on the Adobe Connect platform. Two gamification websites (Flippity & Wordwall) were applied in the experimental group as the treatment, and the traditional method was used for the control group to teach three chapters of American English File book 1. In the experimental group, in the middle of the class, a link was given to the learners. They were randomly grouped through the spin wheel of the Flippity app and were asked to click on the link to start the game that appeared on their screen through the Wordwall and Flippity applications. The results demonstrated that gamification as a treatment in the experimental group was effective and applying gamified activities had a significant effect on Iranian intermediate EFL learners' willingness to communicate and cooperate. However, there was not any significant difference between male and female willingness to communicate and cooperate using gamification. The results of this study can aid teachers and students in better implementation of gamified tools.

Keywords: EFL learners; gamification; online classrooms; willingness to communicate; willingness to cooperate

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1. Introduction

Since the English Language in Iran is regarded as a foreign language and learning a foreign language requires much more energy and enthusiasm, and online gamification is considered a new issue in Iran to enhance the learners' communicative competence, the language instruction should be combined with opportunities to increase learners' willingness to communicate and willingness to cooperate (Hwang, 2018). Besides, as today's learners are digital natives and they are bored of the traditional classrooms with traditional methods without any motivating collaboration, Ardoiz Garcıa (2017) considers it important to equip students with educational tools that help them to achieve their goals. Therefore, as instructors are seeking modern strategies to make the courses and class environments more attractive for learners, online games condone the digital learning era, whereby technology helps in creating a better impartment of knowledge (Rafiq et al., 2019). In this case, gamification can be considered an innovative approach to active learning (Dicheva et al., 2015; Kiryakova et al., 2014; Naji, 2020) which might influence the enhancement of the learners' willingness to communicate and cooperate.

Accordingly, since willingness to communicate in a second language is defined as the readiness to engage in a conversation when the opportunity arises (González, 2017), gamification can offer learners an opportunity to interact with each other. Furthermore, Francisco and Flores (2015) stated that for the teacher, gamification provides tools to consider the instructions from the engaging aspects. Therefore, teachers must equip students with the gamification tools they face to improve their learning experiences and put them in situations to enhance their critical thinking and communication skills by participating in collaborative game platforms (Cameron & Bizo, 2019).

According to Olsen and Kagan (1992, as cited in Farzaneh & Nejadansari, 2014, p. 288), willingness to cooperate in learning refers to learning tasks and activities that are planned "so that learning is dependent on the socially structured exchange of information between learners in groups and in which each learner is held accountable for his or her learning and is motivated to increase the learning of others." To this aim and based on politicians' and educators' considerations, twenty-first-century skills are established on collaboratively working ability and useful relational communication advancement (Weinberger & Shonfeld, 2018).

Accordingly, as Khatibi and Zakeri (2014) stated, Iranian English as a Foreign Language (EFL) learners' lack of confidence to start communicating in front of the public in new circumstances is obvious. It looks like they can more easily make communication in safe and friendly circumstances. Participants feel unsafe by an interlocutor who was not familiar with the participants and did not have enough conversations in English with them to identify their proficiency in English. That is why the learners are not willing to initiate communication with strangers and people who were not their friends, mainly because they are afraid of making mistakes.

Therefore, this research aimed to address the following research questions in which their answers will help the instructors and trainers to get the importance of applying games in classes to better train learners and enhance their willingness to communicate and cooperate in a motivating learning environment. Also, as language learners tend to be highly motivated and empowered when a teacher or an instructor provides well-organized study materials for them, the curriculum developers and syllabus designers might use gamified activities in their classroom designs to keep the learners highly motivated. On the other hand, the researchers can also benefit from the results of this study to expand their knowledge and update their information on gamified activities and EFL learners' willingness to communicate and cooperate in highly motivating classrooms. Providing this planned and designed classroom environment seems to encourage the learners to start meaningful communication without low confidence to communicate and cooperate with their partners. Therefore, the researchers of the present study aimed to provide two digital-game platforms (Wordwar & Flippity) to the Iranian EFL learners to check whether their willingness to communicate and cooperate will be enhanced.

Q1: Does gamification have any significant effect on Iranian intermediate EFL learners' willingness to communicate in online classrooms?

Q2: Does gamification have any significant effect on Iranian intermediate EFL learners' willingness to cooperate in online classrooms?

Q3: Is there any significant difference between male and female Iranian intermediate EFL learners' willingness to communicate?

Q4: Is there any significant difference between male and female Iranian intermediate EFL learners' willingness to cooperate?

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2. Review of Literature

2.1 Gamification

The notion of gamification, which is commonly referred to as the use of game elements and game-design techniques to engage and motivate learners to achieve their goals (Deterding et al., 2011; Kapp, 2012), underlines an action that includes appealing games features within the situation of teaching. It modifies a task, providing a variety of experiences to participants and offering them more tempting opportunities to participate, collaborate, and interact (Kapp, 2012).

Knutas et al. (2014) studied the effects of a gamified online discussion system on users' collaborative behavior and communication (involving 249 students). Their study's results showed that the gamified online discussion system improved student teamwork and course communication efficacy by reducing students' response time to questions. In this regard, Aldemir et al. (2018) adopted "teams", as a game element that can enable participants, in an online learning course, to be aware of others and thus facilitate community building. Based on their qualitative data, participants reacted positively to this game element, with positive effects on learning achievement. Besides, Codish and Ravid (2014), Pedro et al. (2015), and Tsay et al. (2018) studied whether gamification had different effects on female and male students, participants with different lifestyles (part-time or full-time jobs), and on extroverts vs. introverts. It turned out that males are more influenced by gamification (in particular by eternal rewards, such as points, badges, feedback, scores, and challenges) compared to females (Pedro et al., 2015).

Griffin (2017) tried to understand the impact of gamification on willingness to communicate (WTC) in a large group. They invited students to answer a questionnaire to understand the impact that gamification on their involvement in the project. It showed that although setting up the experiment fostered enjoyment and involvement in spoken communication and WTC were enhanced by the gamification through roleplay, which encouraged many students to get involved and overcome their anxiety, a few students remained in the background despite the new group dynamic. Besides, Hwang (2018) examined whether game-based learning is effective for adult second language learners to help them learn English as a second language (ESL) in the United States. The researcher also investigated whether game-play motivated students to learn English in class. Data collected in this study were based on interviews, questionnaires, and observations of the classrooms and gameplay. The results demonstrated that participants' interest in the game created active involvement in class.

According to Rafiq et al. (2019), games caused students to be engrossed and engaged in completing the tasks in the game. Gamified learning undeniably reinforces the motivation of students, aside from fostering independent learning, whereby they can learn at their own pace. The students are more motivated to complete the games, especially if there is a reward toward the end of the game. Due to being motivated, students will be able to learn better and they will independently master a subject matter to complete the game (Rafiq et al., 2019). Besides, games lead students to active learning (Morschheuser et al., 2017) because games are engaging and motivating, which contribute to the willingness to learn by themselves to win the game (Poondej & Lerdpornkulrat, 2016).

Moreover, Horowitz (2019) examined the relationship between informal online multiplayer video games for speakers of other languages learning English to practice their communication skills and reduce their anxiety about using a second language and the time spent playing such games with basic and intermediate ESL college students in Puerto Rico. The results indicated a statistically significant relationship between them and increased confidence and lowered anxiety about using English among second-language learners. Accordingly, Tu and Huang (2019) combined competitiveness, collaboration, and gamification in an English university course. The results illustrated that gamification can enhance students' learning motivation. Jeong (2019) also examined the impact of online collaborative English language learning to enhance learner motivation and classroom engagement in university English instruction. This study reveals that the social networking platform in online group collaboration played a crucial role for the participants in understanding the integration of online group collaboration as a positive and effective language learning strategy.

Rahmani (2020) found the benefits of gamification by conducting qualitative research through the review process. He collected and analyzed 13 relevant articles from journals and websites. The results indicated that gamification indeed brought benefits to students so it is beneficial for students in the English class. Also, Sourav et al. (2021) carried out a study with an informal cooperative group consisting of four university students from a non-English department of Atma Jaya University of Indonesia. The outcome of this study showed that students are more committed to learning in a cooperative learning group while using smart multimedia technology along with gamification.

Besides, Al-Amrani (2021) reports the findings of a research project that examines how learners' WTC might change across various contexts and interlocutor types through involvement with computer-mediated communication (CMC)

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activities. It also investigated the effects of the amount of language instruction represented by different study levels on learners' WTC in English. The results showed that the amount of English language instruction did not affect learners' willingness to communicate in English.

Through a qualitative study, Lei and Medwell (2021) examined 18 student teachers' views about their experience of Online Cooperative Learning (OCL) and the way it affected them as learners and future teachers. Results demonstrate that online co-teacher education provides student teachers a chance to discuss, collaborate, and reflect on their professional evolution of them as teachers.

To sum up, gamification can be considered a motivating factor for learners to boost their collaboration, cooperation, and motivation in online classrooms. They are more committed to learning in a cooperative learning group while using smart multimedia technology along with gamification; therefore, active learning helps the learners to better learn and independently track their learning process. Besides, gamification helps learners to increase their confidence and lower their anxiety about using English in classrooms.

3. Methodology

3.1 Instruments

The researchers used the following instrumentations (willingness to communicate and cooperate) as both pre-attitude and post-attitude questionnaires.

3.1.1 Willingness to Communicate

Students' WTC in a foreign language scale (WTC-FLS) was measured using a 22-item 2-point Likert scale questionnaire developed and validated by Baghaei (2012). To answer the items of the questionnaire, respondents were asked to indicate their levels of agreeability or the frequency of engaging in communication under various circumstances on a dichotomous agree/disagree scale with "agree" indicating higher levels of WTC and "disagree" indicating lower levels of WTC. This questionnaire comprised three constructs: willingness to communicate with native speakers (WTC-NS, items 1–7), willingness to communicate with foreign non-native speakers (WTC-NN, items 8–14), and willingness to communicate in the school context with classmates/instructors who learn and teach the foreign language (WTC-SC, items 15–22).

Rasch's (1960) model was used to validate the scale and the separation reliability of the test was reported as 0.98 (Baghaei, 2012). Further evidence for the validity of the scale was derived from correlation with an English proficiency test used as an external criterion (r=.48).

3.1.2 Willingness to Cooperate

A 12-item 5-point Likert Scale questionnaire developed and validated by McLeish (2009) was used to assess the students' willingness to cooperate in online classes. To analyze the gathered data, the respondents were asked to rate each item on a scale of 1 (strongly disagree) to 5 (strongly agree).

3.2 Procedure

This quasi-experimental research design study was conducted in two online classrooms (one experimental and one control group) via the Adobe Connect platform. Only 50 participants were available who were recruited through the invitation provided in the institution who were intermediate EFL learners of an English language institute selected based on convenience sampling (meanage= 13, SD= 2.2; control group [Female=64%, Male=36%], Experimental group [Female=56%, Male=44%]).

In this study, the researchers performed the following steps to establish the effectiveness of using gamification on EFL learners' willingness to communicate and willingness to cooperate. Two groups were selected as control and experimental groups through convenience sampling. In each group, 25 learners participated, 9 male and 16 female learners in the control group and 11 male and 14 female learners in the experimental group. The learners' age was between 10-24 years old. Before starting the research, the study's two questionnaires were administered to both experimental and control groups as the pre-attitude questionnaire to check their level of willingness to communicate and cooperate before they participate in these online classrooms.

15 sessions were considered to teach three chapters of American English File book 1. Before starting the teaching process, the researchers sent two questionnaires (willingness to communicate and cooperate) to the Whats App groups of both experimental and control groups of learners. They had only two days to answer both questionnaires. Two days after answering the questionnaires, the teaching process started. At the beginning of each session, 10 minutes were devoted to reviewing the previous points of each chapter. In this way, the learners were divided into two teams and some questions about the previous session topic with different points (100-500, from easy to difficult) were provided

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through the Flippity platform as the study treatment in the experimental group for assessing how well the participants have got the previous topic, in this game each group had only two minutes to select a point (between 100-500) and try to answer that.

In the control group, no gamified activities were used, in the review part, the learners were asked to answer the questions related to the previous topic which were written on the board of the Adobe Connect platform. The researcher herself called the learners and asked them to complete the sentences which were written on the platform board and then say some examples about themselves using those sentences' structural points. The teaching process in the control group was through using PDF file of the book; however, in the experimental group the researchers used PowerPoint or Prezi slides. In the middle of the class, the learners were randomly grouped through the spin wheel of the Flippity app and were asked to click on the link sent to the chat box of the platform by the teacher to start the game through the Wordwall app.

The game consisted of some unscrambled sentences related to the topic of each session, learners of each group were asked to complete the sentences in turn by using their ideas and appropriate grammar or vocabulary. As the researchers randomly select the learners via the Flippity app in the experimental group and call the learners in the control group from their list and put them into groups of three/five, all learners were involved in class activities by the researchers' observation. The entire 15-session procedure was accurately controlled in both experimental and control groups. At the post-attitude questionnaire stage, again two questionnaires were sent to both experimental and control groups through the Whats App groups and asked the learners to answer them for the second time to compare their level of willingness to communicate and cooperate before and after the teaching process. The gathered data were checked, recorded, and analyzed using the SPSS26 software.

3.3 Data Analysis

To answer the study's research questions, the researchers used quantitative analysis including a series of preliminary analyses such as assessing the questionnaire's reliability and data's normality using SPSS. To answer the first and second research questions, paired and independent-sample t-tests were used. Moreover, to answer the third and fourth research questions, an independent-sample t-test was used to determine whether there are any differences between the groups on the study's two continuous dependent variables.

4. Results

At the beginning of the study, a pretest in terms of willingness to communicate and cooperate was taken from the participants in both control and experimental groups. Then, an independent samples t-test (Table 1) was run to compare the mean scores of the two groups to see if there was any significant difference between the groups regarding their willingness to communicate and cooperate pretest scores. The result suggests that the two groups were homogeneous in terms of their willingness to communicate and cooperate and no significant difference was observed between groups in the pretest.

Table 1. Results of Independent Samples T-test for the willingness to communicate & cooperate pretest

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
1.095	.301	-.153	48	.879	-.080	.524	-1.135	.975
.569	.454	.062	48	.951	.040	.641	-1.250	1.330

To examine the significant effect of gamified activities on Iranian intermediate EFL learners' willingness to communicate and cooperate, their post-test scores were compared using an independent samples t-test (Table 2).

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Table 2. Independent Samples t-test between the control and experimental groups on post-test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
WTCom	.901	.347	-4.221	48	.000	-2.040	.483	-3.012	-1.068
WTCoop	4.236	.045	-9.531	48	.000	-5.000	.525	-6.055	-3.945

As shown in Table 2, there was a statistically significant difference between the experimental and control groups in their performance in the post-test. Therefore, it can be concluded that treatment in the experimental group was effective, and applying gamified activities had a significant effect on Iranian intermediate EFL learners' willingness to communicate and cooperate. The mean scores' comparison is also clearly illustrated in Figures 1 and 2.

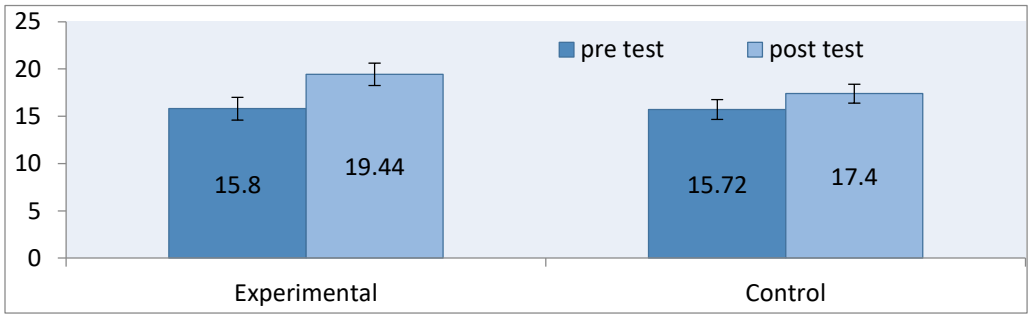


Figure 1. Mean comparisons of WT communicate from pretest to posttest

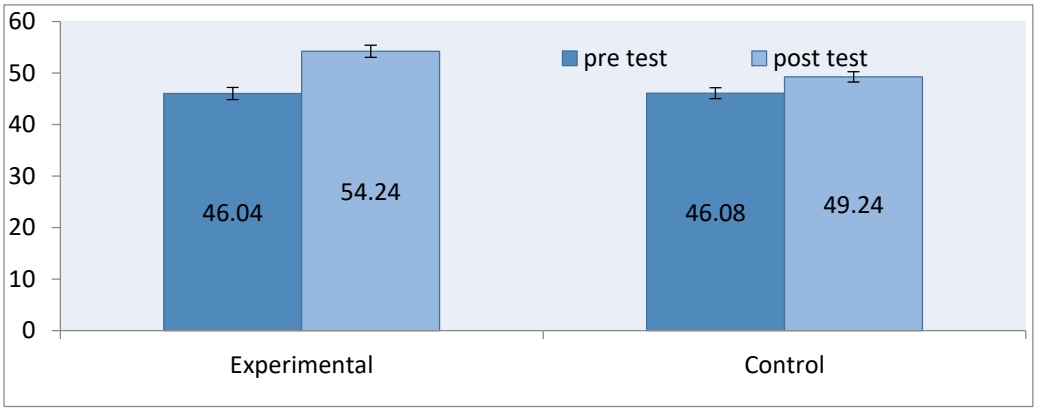


Figure 2. Mean comparisons of WT cooperate from pretest to posttest

Moreover, to examine any significant difference between male and female Iranian intermediate EFL learners' willingness to communicate and cooperate in their post-tests, a comparison of the means of two groups in each variable was performed by an independent sample t-test (Table 3).

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Table 3. Independent Samples t-test

	Levene's Test for Equality of Variances			t-test for Equality of Means						
	Variables	F	Sig.	t	df	Sig	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
WTCom WTCoop	Total	4.21	.046	-.813	48	.420	-.467	.574	-1.62	.687
	Total	.910	.345	-1.61	48	.113	-1.43	.887	-3.21	.350

The independent samples t-test revealed that the WTCom and WTCoop variables in the post-test had a significance level more than the standard error of 0.05, reflecting that the mean of men and women did not differ significantly in these variables.

5. Discussion

In this research, two questionnaires were applied for both experimental and control groups as a pre-test and post-test. According to the results, at the beginning of the study, there was not a significant difference between the control and experimental groups in their willingness to communicate and cooperate which means both groups were homogenous. But there was a significant difference between the participants of the experimental group and their performance in the pre-test and post-test. It was also demonstrated that the experimental group progressed in their willingness to communicate and cooperate and outperformed the control group. Therefore, the results of this study showed that students' willingness to communicate and cooperate advances as a result of gamification which is in line with Reinders and Wattana (2012) who indicate that digital gameplay had a positive effect on the language learning process. The participants were more willing to interact during gameplay, and more confident to talk to others and ask for help. They were also less anxious, and less concerned about making mistakes, and their self-perceived communicative confidence increased.

Also, the results have harmony with Kim's (2010) study results that illustrated the increasing time spent playing online games benefited those learners who were shy about communicating in the target language. Dindar et al. (2020) emphasize the positive influence of gamified cooperation on creating meaningful connections among learners. They also reported that gamification can facilitate learning and motivational outcomes of the learners. And Riar (2020) indicated that gamification can be an effective approach to motivate social dynamics and cooperative activity. However, the findings are in contrast with González (2017), in which the results indicate that while the use of digital games was perceived positively among the participants, it could not significantly advance their willingness to use oral communication in their second language. Besides, they might be in contrast with Coşkun (2012), who concluded that as gamification might also have some limitations, it is indicated that slow learners may be negatively affected in competitive environments.

On the other hand, any significant difference was not observed between male and female learners' willingness to communicate and cooperate while applying gamification. Therefore, no potential contribution to student learning was found between male and female learners. The findings have harmony with Booth-Butterfield and Thomas (1995). They claimed no difference related to gender in communication. Nevertheless, these results are in contrast with Peng (2007, as cited in Wattana, 2013) who found that female learners exhibited higher WTC than male learners. Also, Koivisto and Hamari (2014) in their study concluded that social relationships are more important for females than males in gamified environments. Besides, Li (2004) stated that Korean female students were more anxious than males in communication. McLeish (2009) believes that cooperation among students increases when they celebrate each other's successes, encourage each other to do homework, and learn to work together regardless of ethnic background, gender, or whether they are disabled or not. Chiou (2019) also concluded that between the two sexes, female students have a higher percentage of collaboration and team working in a shorter period.

6. Conclusion

This research aimed to explore the effect of gamification on Iranian EFL learners' willingness to communicate and cooperate. In this case, it was concluded that the learners have shown a positive perspective toward using gamification

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in online classes. The comparison between the pre-test and post-test results showed a significant difference which means that applying gamification made a positive effect on learners' willingness to communicate as well as their willingness to cooperate in online classrooms. It means that the learners felt less anxious and more willing to communicate in the target language in the gamified environment. Accordingly, this study can conclude that gamification makes learners achieve better learning and feel comfortable by providing them with a more friendly environment, immediate feedback, team works, and a positive competitive context.

In addition, when the instructors present a gamified context with various dynamics and mechanics based on the learners' learning styles, they will obtain better results in learning. It can be because each learner has an individual learning style so the instructors must know their learners and the games they play to better decide on designing and personalizing educational games. As gamification team works can subconsciously develop learners' critical thinking, motivation, and involvement, they would cooperate with their teammates and it leads to more communication and cooperation in a positive competitive environment by providing the opportunity to use the target language.

Accordingly, the educational society such as researchers, instructors, and syllabus designers can take advantage of the findings to better plan, design, and present the materials to make the learning environments more efficient and meaningful. Consequently, in this way, the learners can experience the learning process in a supportive, friendly, and positive competitive learning context. Since the present study was conducted considering Iranian intermediate EFL learners in one English language school in Mashhad, further research could perform the research in other contexts such as a university setting, with a larger number of learners in different levels and different cities to generalize the findings. Moreover, further studies could use different platforms and expand the number of websites with different usage covering a specific skill such as speaking.

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