Research Article

The Impact of Digital Games on Students' Willingness to Communicate in a Flipped Classroom Context

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ABSTRACT

Introduction: The ability to use language for communicative purposes is significant in learning English as a foreign language. The present study investigated the effect of digital games on intermediate EFL learners' Willingness to Communicate (WTC) in a flipped classroom context.

Methodology: Of 90 female intermediate EFL learners, 60 participants were selected based on their performance on an Oxford Placement Test. The subjects were then divided into an experimental and a control group. After that, the participants in the two groups filled out the WTC questionnaire as a pretest. Following that, in the experimental group, the researcher used Fun Easy Learning Game Software in a flipped instruction mode to instruct 50 vocabulary items that were identified as unknown to the learners. As for the control group, the learners followed the conventional method of instruction and thus followed the syllabus of the institute. The learners in this group were instructed on the same 50 vocabulary items but did not receive any content in a flipped instruction mode via games. The treatment lasted 10 sessions, and at the end, the participants in both groups were given the WTC questionnaire as a posttest.

Results: The results of statistical analysis indicated that the use of digital games significantly affected intermediate students' WTC in a flipped classroom context. Learners in the experimental group outperformed their counterparts in the control group.

Conclusion: Based on the findings, EFL teachers are encouraged to employ digital games in a flipped instruction mode to enhance EFL learners' WTC.

1. Introduction

The introduction of communicative approaches into the second language (L2) pedagogy has demonstrated the significance of developing communicative competence in L2 learners (Green, 2000). It is proposed that language learning occurs as a result of interactive meaningful communication in a pragmatic setting (Swain & Lapkin, 2002). In Swain's (2000) opinion, language use and language learning take place simultaneously. For Swain, in fact, it is language use that mediates language learning. Consequently, it is essential to take into account the factors limiting and enhancing L2 learners' opportunities to make use of language to communicate as well as learn language via meaningful interaction and communication (Swain, 2000), thereby helping L2 learners in the language learning process.

Highlighting the significant role of communication, language learning is defined by MacIntyre et al. (1998, p. 559) as "authentic communication between persons of different languages and cultural backgrounds". In essence, one of the main purposes of learning English as a foreign language is to use the target language for communication (MacIntyre, 2007). Pushing learners to talk is still considered a big challenge faced by many teachers, as is evident in many reports showing that a large number of EFL learners, especially Asians, are passive, quiet, and shy as they are not willing to respond in the class (e.g., Liu, 2005). Given an opportunity to use their L2, some individuals speak up and others keep silent even after having studied the same L2 for many years

(MacIntyre, 2007). In this sense, willingness to communicate (WTC) is defined as "an individual's volitional inclination towards actively engaging in the act of communication in a specific situation, which can vary according to interlocutor(s), topic, and conversational context, among other potential situational variables" (Kang, 2005, p. 291). In foreign language learning, WTC is the viewpoint that language learners interested in communicating in a foreign language actively look for chances to communicate (Grant, 2020). In fact, the ability to use language for communicative purposes is a significant purpose of learning English as a foreign language (Dornyei, 2005; Kang, 2005; Syed & Kuzborska, 2020).

McCroskey (1992) asserted that factors, such as fear of speaking and lack of self-esteem, affect learners' WTC. On the other hand, WTC can impact EFL learners' confidence and learning motivation (McCroskey & Richmond, 1987). MacIntyre et al. (1998) noted situational learning variables as factors affecting WTC, and Echavez-Solano (2003) put forward mode of learning and the content as two of the situational learning variables. In 2007, MacIntyre went one step further and proposed L2 learners' WTC could be affected by both individual factors (e.g., anxiety, motivation, attitudes, and interpersonal attraction) and social contextual factors (e.g., ethnolinguistic vitality, language contact, etc.). McIntyre and Charos (1996) proposed that if a person has a positive attitude toward L2 learning, they may be more willing to use it in the future. McIntyre et al. (2001), highlighting the importance of WTC, maintain that to promote communicative skills, one needs to use the language, and to use the language, one needs to be highly willing to communicate.

Nowadays, with the advent of computers and digital technology, a vast portion of language learning and teaching is taking place through digital devices, and thus the role and relation of such devices and mediums of instruction should be investigated in language learning and teaching from different aspects (Balchin & Wild, 2020). The use of computers is considered to be a suitable way to develop more interaction among language learners (Engwall & Lopes, 2020). According to Seljan et al. (2009), computers can present skill-based drills, self-assessment tools, and interactive learning as an approach to teaching and learning. Most e-learning environments permit learners to study individually and independently at their own velocity (Van Waes et al., 2014). The primary reasons for the growth of e-learning are the craving of those institutions to generate new revenue streams, improve access, and offer students greater scheduling flexibility. To take advantage of both e-learning and face-to-face teaching, the blended learning approach, which is a combination of face-to-face and e-learning, has emerged (Bergmann & Sams, 2012; Lin & Wang, 2012). One type of blended learning is flipped teaching. Flipped teaching is known by various names, such as flipped classroom, inverted classroom, and reverse classroom (Bergmann & Sams, 2012), among which the flipped classroom is the most common

(Barseghian, 2011). In flipped teaching, the classroom is reversed so that the activities traditionally done at home are done in the classroom, and the activities which were previously done in class are done at home (Sweet, 2014). Flipped learning makes learning central rather than teaching; it fosters independent learning, promotes peer interaction and collaboration, encourages higher student engagement, and provides personal-wise/group-wise attention, feedback, and assistance to students (Lin & Wang, 2012). Due to the COVID-19 epidemic and the rising popularity of these educational approaches, instructors are turning more frequently to unconventional teaching strategies (Pokhrel & Chhetri, 2021; Smith et al., 2022). Even though each of these strategies has the potential to enhance learning results, getting students to exert greater effort in their education remains challenging (Cliffroad, 1999). The self-determination theory has demonstrated that games can effectively motivate participants (Przybylski et al., 2010).

Byrne (1995) defines games as a type of play governed by rules which need to be enjoyable and fun; that is, games are not just a distracter or a break from routine activities, but they are used to motivate the learner to use the language in the course of the game. In the same vein, Hadfield (1990) defined a game as an activity that involves rules, a goal, and an element of fun. According to Blume (2020), games have the potential to focus learners' attention on learning as they do not feel pressured to learn. In fact, games can decrease anxiety, paving the way for input acquisition (Richard-Amato, 1988). They are highly motivating and entertaining, and they can give shy students more opportunities to express their opinions and feelings (York & deHaan, 2018). The usefulness of games lies in attracting students to learn English because games are fun and make learners want to experiment, discover, and interact with their environment (Blume, 2020).

The previous studies have revealed that learners with high WTC come up with ample learning opportunities, engaging in learning activities both inside and outside the classrooms (e.g., Aliakbari et al., 2016; Bergil, 2016; Fahim & Dhamotharan, 2016; Rahbar et al., 2016). Moreover, a review of previous studies indicates that most investigations related to WTC have been correlational. For instance, Yousefi and Kasaian (2014) investigated any correlation between WTC and Iranian EFL learners' speaking fluency and accuracy. Similarly, Valadi et al. (2015) examined the possible correlation between WTC and learners' speaking proficiency. Alemi, Daftarifard, and Pashmforoosh (2011) explored the relationship between the students' WTC in Iranian academic settings and their level of language proficiency. Moreover, most studies on digital games have focused mainly on vocabulary learning. For instance, Aghlara and Hadidi- Tamjid (2011) probed how using a digital computer game improved Iranian children's vocabulary learning. In a similar vein, Aslanabadi and Rasouli (2013) aimed to study the effect of games on the improvement of Iranian EFL vocabulary knowledge. Likewise, Dolati and

Mikaili (2011) examined the effects of instructional games on facilitating students' vocabulary learning. The use of technology, in general, and flipped teaching, in particular, have the potential for language learning. Moreover, digital games have also been on the rise in language learning. Furthermore, WTC of EFL learners should be given more attention as it is an important aspect of language learning. However, a review of previous investigations (e.g., Aghlara et al., 2011; Alemi et al., 2011; Aslanabadi & Rasouli, 2013; Dolati & Mikaili, 2011; Valadi et al., 2015; Yousefi & Kasaian, 2014) indicates that few if any studies have explored the impact of digital games on WTC in flipped a classroom context. Given a dearth of research addressing the effect of games in a flipped learning context on WTC, the present study aimed to fill this gap in the empirical literature by delving into the effect of digital games significantly on intermediate EFL learners' WTC in a flipped classroom context.

2. Methodology

2.1. Participants

In order to carry out this research, a total of 60 Iranian intermediate EFL learners were selected from an initial pool of 90 learners based on their performance on the Oxford Placement Test (OPT). The learners were all female learners in a language institute in Tehran. Persian was the mother tongue of all the participants, and they were within the age range of 20 to 35 years. The participants were selected based on convenience, non-random sampling procedures.

2.2. Instruments

2.2.1. Oxford placement test

As a proficiency test, OPT contains 100 items, which tests the English learners' proficiency in 45 minutes. The participants' performance was measured through their scores which showed their level of language proficiency from beginners to advanced level as 00-20 (Elementary), 21-35 (Pre-intermediate), 36-60 (Intermediate), 61-85 (Upper-Intermediate), 86-100 (Advanced). The researcher employed this test as it is considered an acceptable and practical placement test to administer. For the purposes of this study, based on OPT scale, the participants whose scores were within the range of 36 to 60 were included. Since reliability is sample-dependent, OPT was piloted on 30 participants having similar characteristics to the main participants. The reliability index was calculated to be .76, which is considered acceptable.

2.2.2. Willingness to communicate questionnaire (Pretest and posttest)

Since WTC was the dependent variable of the present study, a WTC questionnaire was administered to the learners prior to and subsequent to treatment as pretest and posttest, respectively. A Likert-type questionnaire developed by MacIntyre et al. (2001) was used to measure learners' WTC levels. The questionnaire has 25 items relevant to the factors contributing to WTC in learning a second language. This instrument is based on a Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The reliability of the WTC questionnaire has been reported to be between 0.85 and 0.90 by Richmond et al. (2013). As for construct validity, MacIntyre et al. (2001) explored the validity of the instrument via both exploratory and confirmatory factor analyses and came up with satisfactory results. This instrument was piloted, and Cronbach's alpha was used to estimate the reliability of the questionnaire on a sample of 30 language learners having characteristics similar to the main participants. The reliability index turned out to be .86, which is considered acceptable.

2.2.3. Fun easy learning game software

Fun Easy Learn English is a software game that can be used online or offline after being downloaded. This software has various activities that come in different configurations and complexities, from simply matching the words to the pictures to complex sentence-making. The application avails a vocabulary of 6,000 words for learners to learn English free. They are not randomly chosen, but carefully selected and logically categorized into more than 140 thematic topics. There are 3 levels of difficulty, for beginners, intermediate learners, and advanced students. The Beginner level comprises 1,000 words of vocabulary. After mastering these, the Intermediate level gives access to another 2,000 words. Finally, upon completion of the Intermediate level, the Advanced level would give a further 3,000 words. For the present research, the researchers used 10 games of the intermediate level. The following photos show some pages related to the game (Figure 1).

2.3. Procedure

First of all, the instruments of the study, including OPT and WTC Questionnaire, were piloted on 30 participants, and Cronbach's Alpha was run to calculate their reliability indices. Next, 90 female intermediate EFL learners were given an OPT, and based on their performance, those who scored within the range of 36 to 60 were selected and divided into an experimental and a control group. After that, the participants in the two groups were asked to complete the WTC questionnaire as a pretest. Following that, in the experimental group, the researcher used Fun Easy Learning Game Software in a flipped instruction mode. To do so, learners in this group were given one game to play prior to attending the class. All in all, 50 unfamiliar words were identified and worked on during the treatment sessions.

In order to select unfamiliar vocabulary items, 80 intermediate-level words from "Fun" as online game were given to the learners. The participants were asked to
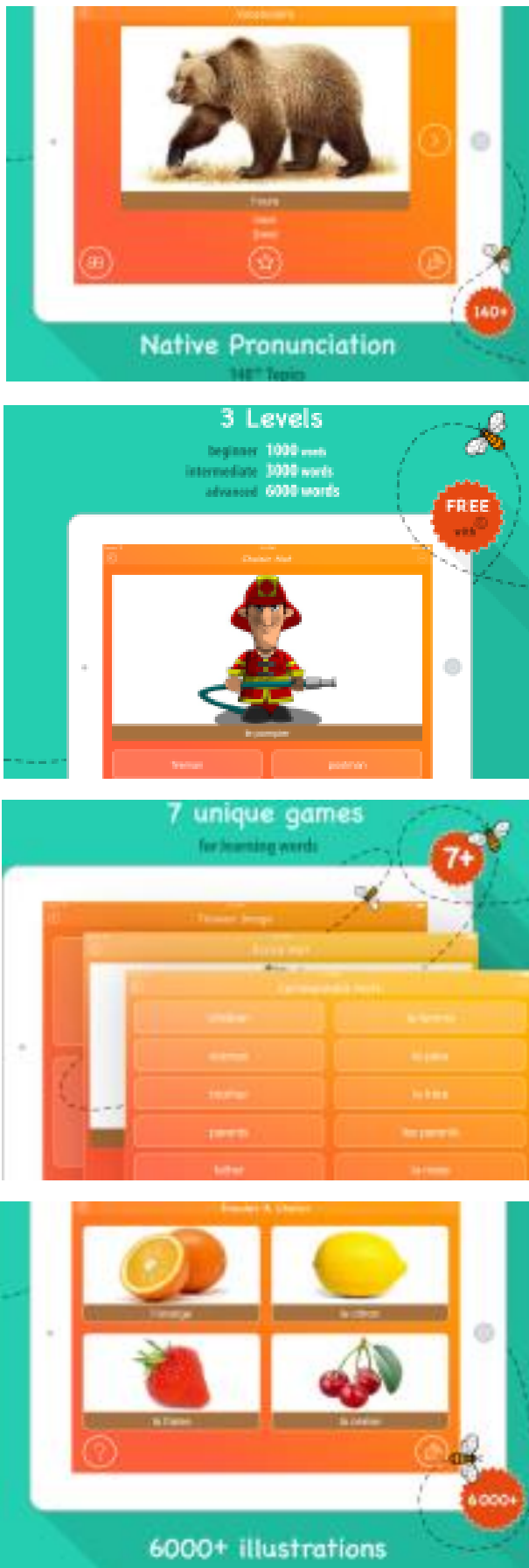
Figure 1.
Photos from the Intermediate Level of Fun Easy Learn English Game Series

underline the familiar words and write down their Persian equivalent and a sample sentence for known words. There were 50 words that learners found difficult to recognize their meaning. So, these words were selected for the study.

Both groups learned 50 new vocabularies in 11 sessions; each session 5 new words and the last session was the round off the session. Students in the experimental group were exposed to the "Fun" as online game every session. To this end, 10 games were used. The names of the games used were find image, choose word, listen and choose, listen and write, read and match, go online, shop things, draw images, find synonyms and play in the garden. Every session, according to the need of the game, the researcher asked the students of the experimental group to do the game individually. Before asking the learners to do the game, she explained clearly the rules and the time of the game to the students, so all the participants knew well what they were going to do. Each game had its own special characteristics, so the students had to act differently. For instance, in the game named *Find Image*, the learners were given a vocabulary item and were required to find the image associated with that vocabulary item. The following Table displays the activities that happened in each session during the treatment in the experimental group:

Since students received the lesson content prior to the class, the face-to-face part in the classroom involved practice and discussion, leading to a face-to-face collaborative learning environment. It started with the teacher's questions about what students understood from the materials they practiced, as well as when and how they were going to use the content under instruction. It continued with the teacher's questions about the students' problems and what they had not understood. Students were then divided into six groups of five, and each group received a paper involving five or more questions. The learners in each group were supposed to answer the questions collaboratively. In the next step, the groups swapped their papers, and they were required to correct the possible problems of the group whose paper they received. At the end, the teacher went through all the questions one by one by giving complimentary illustrations about each question and its answer (Table 1).

As for the control group, the learners followed the conventional method of instruction and thus followed the syllabus of the institute. The learners in this group did not receive any content in a flipped instruction mode via games. The treatment lasted 10 sessions in five weeks altogether for both groups. At the end of the tenth session, the participants in both groups were given the WTC questionnaire as a posttest. Descriptive statistics were used to display the means, standard deviations, and variances of the data. Moreover, Cronbach's Alpha was used to check the reliability of the instruments. As for inferential statistics, the researcher used an independent samples t-test to address the research question.

Table 1.
Experimental Group Activities in Each Session

Session number	Activities
Session 1	• The game "find image" was introduced to the learners. • One sample vocabulary item was practiced with the learners • Learners were given instructions on how to do the game clearly • Learners were asked to do the game at home prior to the class
Session 2	• Learners were asked about "find image" game • The vocabulary items from "find image" were practiced in the class; both individually and in pairs • Teacher asked questions with regard to the meanings of the words in "find image" game. • The "choose word" game was introduced to the learners • Learners were asked to do "choose word" game at home prior to the class
Session 3	• Learners were asked about "choose word" game. • The vocabulary items from "choose word" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "choose word" game. • The "listen and choose" game was introduced to the learners for the next session. • Learners were asked to do "listen and choose" game at home prior to the class.
Session 4	• Learners were asked about "listen and choose" game. • The vocabulary items from "listen and choose" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "listen and choose" game. • The "listen and write" game was introduced to the learners for the next session. • Learners were asked to do "listen and write" game at home prior to the class.
Session 5	• Learners were asked about "listen and write" game. • The vocabulary items from "listen and write" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "listen and write" game. • The "read and match" game was introduced to the learners for the next session. • Learners were asked to do "read and match" game at home prior to the class.
Session 6	• Learners were asked about "read and match" game. • The vocabulary items from "read and match" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "read and match" game. • The "go online" game was introduced to the learners for the next session. • Learners were asked to do "go online" game at home prior to the class.
Session 7	• Learners were asked about "go online" game. • The vocabulary items from "go online" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "go online" game. • The "shop things" game was introduced to the learners for the next session. • Learners were asked to do "shop things" game at home prior to the class.
Session 8	• Learners were asked about "shop things" game. • The vocabulary items from "shop things" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "shop things" game. • The "draw images" game was introduced to the learners for the next session. • Learners were asked to do "draw images" game at home prior to the class.
Session 9	• Learners were asked about "draw images" game. • The vocabulary items from "draw images" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "draw images" game. • The "find synonyms" game was introduced to the learners for the next session. • Learners were asked to do "find synonyms" game at home prior to the class.
Session 10	• Learners were asked about "find synonyms" game. • The vocabulary items from "find synonyms" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "find synonyms" game. • The "play in the garden" game was introduced to the learners for the next session. • Learners were asked to do "play in the garden" game at home prior to the class.
Session 11	• Learners were asked about "play in the garden" game. • The vocabulary items from "play in the garden" game were practiced in the class; both individually and in pairs. • Teacher asked questions with regard to the meanings of the words in "play in the garden" game.

3. Results

One of the concerns of the present study was obtaining reliable data which was largely dependent on the reliability of the data collection instruments. The reliability indices of the OPT and WTC Questionnaire were estimated through Cronbach's Alpha internal consistency measure on a pilot sample of 30 students before starting the main study. Table 2 shows the results of Cronbach's Alpha analysis on the instruments used in the present study.

As can be seen in Table 2, Alpha values for WTC and placement test turned out to be 0.86 and 0.76, respectively,

which are considered acceptable indices of reliability (Cohen et al., 2018).

To select intermediate learners for the present study, OPT was given to 90 learners, and only those whose scores fell within the range of 30 to 60 were selected. Tables 3 displays the descriptive statistics of the OPT scores for the 60 selected learners.

As presented in Table 3, the minimum and maximum scores on OPT were 36 and 60, respectively.

To address the research question of the study, it was first necessary to ensure that the control and experimental groups were not significantly different in terms of WTC prior

Table 2.

Results of Cronbach's Alpha Analysis

	N	Minimum	Maximum	Mean	Std. Deviation	Alpha
WTC pilot	30	48.00	89.00	63.73	7.32	0.86
OPT Pilot	30	33.00	65.00	52.42	6.43	0.76
Valid N (listwise)	30					

Note. WTC = Willingness to communicate; OPT = Oxford Placement Test

Table 3.

Results of Descriptive Statistics of the OPT Scores for the 60 Selected Learners

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
OPT	60	8.00	36.00	60.00	53.57	7.22	12.31
Valid N (listwise)	60						

Note. OPT = Oxford Placement Test

to the administration of treatment. Thus, any differences between the mean scores of the two groups on the posttest could be attributed to treatment. To check any statistically significant difference between the WTC scores of the two groups on pretest, an independent samples t-test was run. Table 4 tabulates the descriptive statistics of the two groups for the WTC on the pretest.

As presented in Table 4, the mean of the scores for the control and experimental groups are 60.96 and 61.03. To examine a statistically significant difference between the two means, an independent samples t-test was run. Table 5 shows the results of the independent samples t-test on the WTC pretest scores.

As indicated in Table 5, the sig value is .98, which is above .05, meaning that the mean difference between the two groups on the WTC pretest is not statistically significant.

After making sure that the two groups were homogenized in terms of WTC prior to the treatment, the posttest of WTC was administered to the participants at the end of the treatment. To probe any significant difference between the experimental and control groups regarding their WTC, an independent samples t-test was run on the WTC posttest scores. Table 6 presents the descriptive statistics of the posttest scores for the control and experimental groups.

As noticed in Table 6, the mean of the scores for the control and experimental groups on the posttest are 61.10 and 83.20. To examine a statistically significant difference between the two means on posttest, an independent samples t-test was run. Table 7 shows the results of the independent samples t-test on the WTC posttest scores.

Table 7 shows the significance value equals .00, which is lower than .05, indicating that the mean difference between the two groups on the posttest was statistically significant, with the mean score of the experimental group higher than that of the control group. Therefore, it can be inferred that there was a significant

Table 4.

Results of Descriptive Statistics for the Willingness to Communicate Pretest Scores for the Control and Experimental Groups

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest WTC Control	30	38.00	97.00	60.9667	15.49746
Pretest WTC Experimental	30	35.00	90.00	61.0333	11.43945
Valid N (listwise)	30				

Note. WTC = Willingness to communicate

Table 5.

Results of Independent Samples T-test for the Willingness to Communicate Pretest Scores of the Experimental and Control Group

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pretest WTC Both	Equal variances assumed	1.432	.236	-.019	58	.985	-.06667	3.51678	-7.106	6.972
	Equal variances not assumed			-.019	53.368	.985	-.06667	3.51678	-7.119	6.985

Note. WTC = Willingness to communicate

Table 6.

Results of Descriptive Statistics for the Willingness to Communicate Posttest Scores for the Control and Experimental Groups

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Posttest WTC Control	30	39.00	100.00	61.1000	17.46000
Posttest WTC Experimental	30	47.00	112.00	83.2000	16.45768
Valid N (listwise)	30				

Note. WTC = Willingness to communicate

Table 7.
Results of Independent Samples T-test for the Willingness to Communicate Posttest Scores of the Experimental and Control Group

		Independent Samples Test							
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Posttest WTC Both	Equal variances assumed	.06	.79	-5.04	58	.000	-22.10000	4.38067	-30.86	-13.33
	Equal variances not assumed			-5.04	57.798	.000	-22.10000	4.38067	-30.86	-13.33

Note. WTC = Willingness to communicate

difference between the experimental and control groups regarding their WTC. Thus, the null hypothesis of the study was rejected, and it can be concluded that the use of digital games significantly affected intermediate students' WTC in a flipped classroom context.

4. Discussion

The present study aimed to investigate the effect of digital games on intermediate students' WTC in a flipped classroom context. The results of statistical analysis indicated that the use of digital games significantly affected intermediate students' WTC in a flipped classroom context.

The results of the present study substantiate the findings of previous investigations exploring the effects of different modes of technologically-based instruction on improving different language skills and components. For instance, Jafarigohar et al. (2019) found that learners in the flipped experimental group outperformed the traditional face-to-face group in terms of speaking proficiency. In addition, flipped class learners had a positive attitude towards flipped instruction effectiveness in improving their listening and speaking proficiency. Similarly, Chen (2015) explored EFL undergraduates' perceptions of speaking instruction and concluded that the learners had positive attitudes toward the contribution of in-class exercises and home activity speaking tasks towards their speaking performance. Moreover, Lee and Wallace (2018) investigated the outcomes and perceptions of flipped teaching in an EFL classroom at a South Korean University. The results of Lee and Wallace's (2018) study demonstrated that, in general, flipped class learners outperformed the non-Flipped class in their final scores. Furthermore, learners' attitude toward FT was positive, and the instructors' observation indicated more students' language learning engagement in the Flipped classroom. In a similar line of the query, the findings of Mohammadi and Mirdehghan (2014) revealed that the use of computer-mediated communication with an emphasis on blended learning had a significant effect on learning phrasal verbs. As Van Laer and Elen (2017) contend, flipped classroom environments are beneficial in different ways. They provide rich and inexpensive resources both for teachers and learners, and because teachers and learners can have easier access to knowledge, social interaction is increased (Van Laer & Elen, 2017).

With a focus on the benefits of using technology in educational settings, one can find reasons for focusing thoughts and attention on the employment of technological applications in personal and educational settings. For instance, one of the main benefits of technology is the possibility of offering learning activities beyond class, together with the interest of most learners in technological devices such as computers and mobile phones as both learning and communication devices (Donaldson & Haggstrom, 2006). Another reason for such attention might be that such technological devices offer the opportunity to encompass the time and space confinements of traditional learning settings (Inan & Lowther, 2007). In addition, the particular degree of flexibility inherent in using technological devices for learning and conducting an online search for information has made them appropriate for student-centered learning (Lambropoulos et al., 2006).

Norton and Wiburg (2003) name the internet as the main reason for learning to become learner-centered. Similarly, Beatty (2003) believes that computers along with the internet, inherently allow for more learner-centered education. Along the same lines, Kitao (1995) believes that the important aspects of computer-assisted language learning (CALL) that make more learning possible are more chances of collaboration and learner-centeredness. In this respect, proponents of CALL claim that there has been a great shift in the learners' role in EFL/ESL contexts, with CALL activities changing the learners' role from the passive to the more active, decision-making making and autonomous roles (Healey, 1999). This claim is supported by studies by Barson and Deski (1996), who revealed that students became more cooperative as a result of the application of technology in EFL classes.

5. Conclusion

The present study aimed to investigate the effect of digital games on intermediate students' WTC in a flipped classroom context. The results of statistical analysis indicated that the use of digital games significantly affected intermediate students' WTC in a flipped classroom context. The results of the current study further confirmed the findings of the previous investigations on flipped teaching. Moreover, the findings of the current study further substantiated the results of previous research regarding the efficacy of the use of technology in enhancing different language skills and components. However, the results of the current study cannot be taken as conclusive, and more investigations are needed to provide a more comprehensive picture of the effects of the use of digital games via flipped instruction on WTC. Based on the findings, EFL teachers are recommended to employ digital

games via flipped instruction to improve EFL learners' WTC. Likewise, teacher educators should devise and plan courses in which teachers can develop their awareness regarding the contributions of digital games via flipped instruction towards improving different language skills in general and WTC in particular. Materials developers should try to develop materials so that the application of flipped teaching becomes easy for teachers when it comes to improving WTC. Teachers can take advantage of the findings of this study by working out valuable points to utilize to transform their way of teaching towards implementing flipped teaching when it comes to enhancing WTC. Finally, based on the results of the current study, EFL learners can better understand flipped teaching and become more inclined to use it in improving their WTC and consequently become more accustomed to new technology and learning techniques.

Declarations

Competing interests

Authors declare no conflicts of interest.

Authors' contribution

All authors participated equally to conduct the present study.

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