

Research Article

An Investigation of EFL Learners' Vocabulary Retention and Recall in a Technology-Based Instructional Environment: Focusing on Digital Games

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Using digital games in language learning is beneficial, but their effectiveness in the Bangladeshi EFL context has been overlooked. Therefore, the purpose of this research was to evaluate the impact of playing digital games on Bangladeshi EFL learners' ability to remember and retain the language. The Oxford Quick Placement Test was given to 78 Bangladeshi English as foreign language students. Based on the findings, 50 primary school pupils were selected based on the convenient sampling method as the study's target group for further investigation. Afterward, they were separated into two groups: one for the experiment and another for the CG. After that, all subjects were subjected to pretesting, and then, the therapy was administered. The EG was educated by the researcher via the use of digital games. The participants in the EG were taught English vocabulary via the use of a computerized game, which they found entertaining. On the other hand, the students of the CG received a traditional vocabulary teaching. After teaching 90 vocabulary in nine sessions, an immediate vocabulary posttest was conducted on both groups to determine the treatment's possible effects on their vocabulary recall. Three weeks later, a delayed posttest was given to the participants to examine the effect of digital games on their vocabulary retention. The results of paired samples and independent sample *t*-tests showed that there was a significant difference between the immediate and delayed posttests of the EG and CGs in favor of the EG. The EG outperformed the CG both on the immediate and delayed posttests. This study has some implications for teaching and learning vocabulary.

1. Introduction

If language structure is the skeleton of language, then vocabulary is the crucial organ and tissue that allows it to function appropriately [1]. Horwitz [2] observed that a significant majority of ESL students who responded to her questionnaire—varying between 25 percent and 39 percent—either agreed or strongly agreed that vocabulary development is the most important aspect of learning a foreign language. Because of the growing interest in vocabulary learning in

the area of second language acquisition, it is crucial to consider how words are learnt in this context. In the late 1980s and early 1990s, lots of new studies were conducted in this field, and researchers attempted to determine the meaning of the terms efficient and appropriate in both short- and long-term vocabulary acquisition [3]. The study of Yoshii and Flaitz [4] recognized vocabulary learning as a critical component of each student's life. Other investigators [4] understand the significance of vocabulary acquisition in language proficiency and academic advancement, but their

thoughts about how vocabulary should be learned have differed significantly from one another. Faliyanti and Sari [5] state that it is necessary for students to learn sufficient vocabulary before learning other English language skills.

The concept of learning vocabulary via digital games has recently gotten a lot of attention. The term “game” refers to “a goal-oriented, rule-based, and entertaining activity” [6]. Digital games play a big part in the lives of today’s youth. Digital games are games that are developed with different technologies and allow users to enter a visual environment [7]. Digital games are games that are created with various technologies and allow users to enter a visual environment. Digital games are a type of teaching technology because they give a challenge and a desire, which may pique students’ interest; also, the feedback provided throughout the game-playing process can help students improve their learning knowledge [8]. According to Sancar-Tokmak [9] and Nama-zandost et al. [10], computer games may improve high-grade students’ creativity, problem-solving abilities, and drive to attain academic goals. Cheng and colleagues [11] hypothesized that computer games might be used to improve a person’s induction abilities. Frequent contact with new English vocabularies in instructional games helps EFL learners learn vocabulary easier since they have the opportunity to review what they had learned before [12].

Donmus [13] believes that the importance of educational games in language teaching is rising since they serve to make language learning more enjoyable. As Donmus [13] points out, when games and education are merged, the result may be both informative and enjoyable, and education settings can be both. Students develop more favorable perceptions when learning via games and are more driven to complete their assignments. In this paper, we examine the impact of playing games on vocabulary acquisition in English as a second language (EFL). The majority of vocabulary in English is presented out of context as separate terms; the primary complaint leveled at this method of instruction is that vocabulary cannot be acquired in isolation from other words [14, 15].

Activities that encourage students to think about the words, such as playing games, help them retain more information about the target words more effectively. Learning vocabulary is a difficult task, and it takes effort to comprehend, generate, and manipulate the target words. Many students can benefit from and are encouraged to learn the target language more readily via the use of games. They assist instructors in creating circumstances in which the target words are helpful and relevant; they also provide enjoyment for pupils, which aids in their ability to learn and remember new words more quickly and effectively. In other words, game-based learning has the potential to provide a relevant context for the language-learning process as it takes place. Learners have the chance to interact with language in a non-stressful manner after learning and practicing new terminology via games, according to the teacher [16–18].

When it comes to learning vocabulary, games are both beneficial and valuable. Their motivational value comes from the fact that they often entail friendly competition and foster a cooperative learning atmosphere, allowing students the chance to collaborate on projects. They allow

learners to develop their communication skills while also giving them the opportunity to practice the target language [19, 20]. As a result, vocabulary games bring real-world context into the classroom and improve students’ ability to communicate effectively in English in a flexible manner. It is impossible to overstate the importance of games in teaching and learning vocabulary.

Educational games, according to Kalaycioglu [21], are considered acceptable and powerful for very young children compared to other foreign language teaching strategies since the character of educational games corresponds to the nature of the children who play them. Games are enjoyable for children because they encourage interaction, physical and cognitive activity, socializing, competitiveness, and collaboration. Games are also beneficial to adults because they help children learn important life skills. Furthermore, youngsters learn how to work alone and in groups, and their desire and interest in games grow as a result. Furthermore, since games are child-centered, they may be tailored to meet specific educational objectives while also accommodating different age groups (p. 11).

Traditional teaching and learning vocabulary seem dull for teachers and learners; therefore, new tools are needed to be employed in the vocabulary teaching process. The learning process will be more beneficial as a result of the use of vocabulary games; this strategy may make vocabulary learning more entertaining, therefore assisting pupils in recalling target words more rapidly and effectively. As a result, the current research sought to determine the effects of playing digital games on Bangladeshi EFL students’ vocabulary recall and retention.

This study is significant since its findings can persuade teachers and learners to use different games in language teaching and learning. Game-based learning instruments make the learning process more attractive by involving and motivating students. Games can provide the chance to learn vocabulary both inside and outside the class context.

2. Review of the Literature

Children’s growth is intertwined with games, and toys are always present in their environment. Recently, psychologists have stressed the importance of children learning via games and other interactive activities. Games, such as lubricant and catalyst, may support learners in learning without burdening them, and game-based learning does not have the antilearning impact [22] of moving a duck onto a perch or pulling up seedlings to assist them in growing. Games, according to Aghlara and Tamjid [16], are a fundamental way of linking intrinsic psychological processes, logical memory, and abstract reasoning.

Greenhill and Montenegro [23] proposed that game-based training should give narrative circumstances and abilities appropriate for the learning objectives to avoid becoming a master of the game. Because games are used to increase learning motivation rather than to increase learning focus, it is critical to have transparent rules and comfortable situations, as well as to understand learners’ knowledge and skills, in order to design tasks with an exercise end and complexity

that is available for various levels of learning. Dehghanzadeh and Dehghanzadeh [24] stated that game-based teaching is effective in teaching different parts of language to EFL learners.

Game-based instruction (GBI) is a kind of educational game software that is created by mixing instructional material with the features of the game. It was said by Yoon [25] that using a gaming application might help students learn more effectively since it allows them to practice while also making decisions and receiving feedback from the system. Such a cycle helps learners feel good about themselves and be eager to spend time on such a learning cycle continuously; in addition, regularly playing such games may help them attain specific training objectives or particular learning outcomes. According to Purgina et al. [26], learning a new language is more effective and successful by using games than in nongame learning settings.

According to Anastasiow et al. [27], games foster a sense of competitiveness and collaboration among players, as well as being appealing and challenging. Cheng et al. [11] made the argument that games with educational purposes should have elements such as challenge, fantasy, and comedy by citing the perspectives of many scholars on the “properties of games.” (1) For difficulty of the games, i.e., the level of difficulty, the agents included the difficulty setting of game aims, the degree of flexibility of game rules and the fundamental constraint, and strategies that players might implement while competing against time, the computer, oneself, and even actual people. (2) For fantasy, i.e., the capacity to use one’s imagination throughout the game operation, it primarily served to improve the incentive of players to finish the procedure and the overall appeal of the games. (3) For entertainment, or enjoyment, throughout the gaming operation, along with instilling learning motivation and reinforcing the learning effect via entertainment, it has the potential to enhance the recreational value of games.

Learning words through games have gained a lot of attention. Donmus [13] said that educational games are valuable, and they are increasing in language education because of their entertaining features for the learners. According to Donmus [13], when games and education are mixed, it can be educative, and education settings can be attractive. The students taught by games present positive attitudes towards learning and can be more interested in learning. However, to get the most from word games, it is necessary to select suitable games. Whenever a game is needed to be utilized, the cultural background and the proficiency level of the students need to be considered, and also, it should be beneficial for students with lower language capability and should be easily used in the classroom. Numerous textbook and methodological manual authors have mentioned that games are not just time-filling activities but are greatly valuable in the educational system [28, 29].

Vocabulary learning is often tedious for language learners, specifically for students living in the digital era. In this digital era, Internet has provided a world of possibilities for enhancing learning target words for the students. By applying Internet games, instructors and parents can ascertain that their children are prepared for the pleasing experi-

ence of reading and writing [17, 30]. Demirbilek et al. [31] inspected the foreign language teachers’ ideas about the use of educational games in foreign language learning at the graduate level. The findings displayed that the use of computer games as an instructional means can influence the way how computer games are used in the lectures, the characteristics of the game, in-class hardware and software infrastructure, and the perceptions and attitudes of teachers and pupils towards the computer games. Lorenset and Tumolo [32] revealed that games could enhance students’ physical and mental capabilities, attract respondents’ attention all the time, and put them in a competition with themselves and others to achieve specific goals.

It is important to teach vocabulary via the use of games since games bring fun and interest to the subject matter [17, 33]. If effective techniques for teaching vocabulary are developed, students, particularly young learners, will embrace new foreign languages more readily. Because of the difficulty in recalling novel words and spelling, acquiring a new vocabulary is seen as a challenging undertaking. Games have the potential to be an excellent method of motivating and engaging pupils more in the learning process. The use of technology in the classroom encourages us to move away from traditional pen-and-paper education and toward more participatory and fruitful digital classroom activities and activities. According to Liu et al. [34], games that include animated images and audio effects are useful to motivate students to learn new vocabulary words. Extensive research conducted with young English language learners has shown that using digital games in the classroom has a favorable influence on the development of vocabulary and comprehension skills. The common grounded theory pertinent to game-based learning is the self-determination theory (SDT) [35], mentioning that gamification increases the students’ engagement by making use of extrinsic elements.

Saffarian and Gorjian [36] investigated the influence of computer-based video games on enhancing children’s cognitive development and found that they had a beneficial effect. Their research looked at the effects of several sorts of instructional delivery systems on children’s learning accomplishments and found that they were all positive. The participants in their research were 418 EFL instructors and learners who were involved with EFL at an Iranian university. Both typical computer-assisted instruction (CAI) tools and a computer-based video game were used to train the participants in this experiment. The outcomes of their research demonstrated that the EG who utilized computer games as a teaching technique in foreign language classrooms performed much better than the CG who did not use computer games as a teaching aid. And thus, computer games played a part in teaching and learning a second language by making it easier to do so.

Aslanabadi and Rasouli [37] performed research to examine the impacts of games on developing Iranian EFL vocabulary knowledge. The researchers wanted to discover a strategy to aid young EFL learners in assimilating new terminology into their brains, which is why they conducted this study. The research was conducted at two different

kindergartens. They divided the students into two groups: the EG and CG groups. The EG got online language learning via a game, whereas the CG received conventional language tuition. According to the research findings, games not only make learning more enjoyable for students in the classroom but also encourage them and enhance their self-confidence.

Ebrahimzadeh and Alavi [38] investigated the influence of a commercial digital video game on the motivation of high school pupils to acquire a foreign language via play. Each of the three treatments included 241 male students who were randomly allocated to one of three groups: readers, who extensively read the game's plot; players, who participated in the digital video game; and watchers, who saw two classmates participate in the digital video game. Participants were given a language learning motivation measure as a pre- and posttest, and the results were compared. Also, field notes were made throughout the expedition. The findings revealed a considerable improvement in language learning motivation during the course of the study.

Bahojb Jafarian and Shoari [39] did a quasi-EG study to examine the outcomes of a game on Iranian young EFL learners' vocabulary learning. Sixty elementary learners were selected as the study participants, which lasted one academic semester. They were separated into two groups, each consisting of 30 learners: one group was designated as EG and the other as CG. Independent and paired sample *t*-tests were used to assess the data that had been collected. There was a statistically significant difference between the posttests of EG and CG groups, according to the findings of the paired sample *t*-test and independent sample *t*-test. A posttest comparison revealed that the EG outperformed the CG.

Utilizing gamification, Chen et al. [15] evaluated the impact of gamification on the reading performance of fifty-five fifth-grade pupils in Taiwan. The information was gathered via the use of a pre-posttest. Findings pointed out that there were no statistically significant differences between the study groups taught by the conventional method and by the gamification method. This result means that gamification was not effective in teaching reading.

NNES learners' impressions of English language learning and TOEIC vocabulary growth were investigated by Cheng [40] in the context of incorporating a game-based learning website (i.e., Quizlet) into a first-year English course. Specific to this study's purpose, it aimed to determine if students' motivation and attitude toward English language learning and TOEIC vocabulary development may be significantly lowered or boosted in a game-based learning environment. The outcomes of this study indicated that the majority of the participants felt uneasy about their existing English language skills and their ability to get adequate results on their own TOEIC test. However, it appeared that many students had more positive attitudes toward using Quizlet to build up their TOEIC vocabulary, had greater motivation to learn TOEIC vocabulary, and expressed that they had much more confidence in their ability to achieve higher grades on their TOEIC exam as a result of using this game-based learning website to prepare for their exam.

Fithriani [41] investigated the impact of gamified vocabulary acquisition in a mobile-assisted language environment

on the vocabulary learning outcomes of Indonesian adult EFL learners. She found that it was successful. It was decided to use two classes of 74 first-year students taking a General English course at a public university in Indonesia as the participants in this research. The students were then randomly allocated to either the EG or CG groups. Apart from pre- and posttests, data were collected by online questionnaires, which were then analyzed using the SPSS 20 software program. In general, the data suggested that pupils in the EG outperformed their counterparts in the CG in terms of academic performance. Besides that, they were able to validate the advantages of mobile-assisted gamification for their vocabulary acquisition in three different areas: learning outcomes, pleasure, and motivation.

Based on the findings of the literature, it can be concluded that digital games have a good impact on the learning process. In the classroom, the use of such games results in increased motivation, which in turn enhances the learning process of students as well as their cognitive success. Because children are actively participating in such activities, the learning process becomes much more fun, and the pressures associated with the learning process are much decreased. Despite their importance, digital games have not yet received sufficient attention in the Bangladeshi EFL context. Most studies in this domain were conducted in other EFL settings (e.g., [36–38]). In fact, only a few studies have examined the effectiveness of using digital games on Bangladeshi EFL students' English achievement. More specifically, there is a dearth of empirical research examining the effects of digital games on improving Bangladeshi EFL learners' vocabulary learning. Therefore, this study was designed to investigate the effects of digital games on Bangladeshi EFL learners' vocabulary learning. Accordingly, one research question was raised:

RQ. Does using digital games bring about positive effects on Bangladeshi EFL learners' vocabulary recall and retention?

According to the above-stated question, the following null hypothesis was formulated:

HO. Using digital games cannot bring about positive effects on Bangladeshi EFL learners' vocabulary recall and retention.

3. Methodology

3.1. Design of the Study. The research followed a quasi-experimental study with a quantitative method in the data collection procedure. The design of this study was based on a quasi-experimental method (i.e., the pretest, the treatment, and the posttest). This study consisted of one experimental group and one control group while focusing on the variable of digital games as the independent variable and vocabulary recall and retention as the dependent variable.

3.2. Participants. The research participants were 50 pupils from the one English Language Institute in Bangladesh who were chosen from a pool of 78 primary learners. They were selected based on a nonrandom selection method (convenient sampling) since they were easily available. The

participants' ages ranged from thirteen to seventeen years old. They had been studying English as a foreign language for at least three years before they came to the United States. Students at the primary school level were assessed based on their performance on the Oxford Quick Placement Test, which measured their level of English language ability (OQPT). The learners were separated into two groups: one EG and one CG group. It should be noted that only male students were recruited for this study since the researcher had the easiest time getting in contact with them. It should be noted that a consent letter was given to all participants to declare their tendency and satisfaction with the study.

3.3. Instruments. The OQPT was the first instrument employed in the current research to homogenize the proficiency levels of the participants, and it was the first of its kind. In order to gather information on the learners' competency, this tool was employed. Based on the results of this exam, children with scores ranging between 18 and 29 were invited to participate in the research as members of the elementary group. The second instrument used to collect the necessary information was a pretest on vocabulary created by the researcher and based on the students' textbook. There were 40 objective questions (multiple-choice items) on this exam. The reliability and validity of the aforementioned test were determined by this study. In addition to three English teachers confirming its validity, the pretest was also tested for reliability, which was determined using the KR-21 method ($r = 0.79$). The third instrument employed in the present study was a posttest on vocabulary that was created by the researcher and was a modified version of the pretest. It was conducted in order to investigate the impact of digital games on the participants' ability to acquire new vocabulary words and phrases. The posttest included all of the same features as the pretest, including the amount of time it took and the number of items. The only difference was that the sequence of the questions and options was modified in order to exclude the possibility of recalling answers from the pretest. It was determined that the posttest was legitimate and trustworthy due to the fact that it was a modified version of the pretest. This instrument was utilized for both the immediate and delayed posttests of the research, and it was shown to be effective.

3.4. Procedure. The OQPT was administered to 78 Bangladeshi EFL students as part of the first stage. A total of 50 primary pupils were selected as the study's target population on the basis of their performance on the OQPT test. Following the selection of the target participants, they were separated into two groups at random: one for the EG and one for the CG. Next, all subjects were given a pretest, and then, the therapy was carried out on them. The EG was taught by the researcher via the use of digital games. Students in the EG were taught English vocabulary consisting of the names of various animals, family members, colors, and so on via the use of a computer game developed just for them. The name of the digital gaming program that was employed in this research is SHAIEx (Scientific Artificial Intelligence Experiment) (Sistema Hipermedia Adaptativo para la ense-

nanza de idiomas en entorno Linux). SHAIEX is an abbreviation for the Adaptive Hypermedia System for the Teaching of Languages at the Early Ages, which was developed under the Linux operating system. Ten new words were trained for the experimental group in each session using SHAIEx. The students were involved in learning, and they cooperated with each other to understand the meanings of the words. For their part, students at the CG were barred from receiving medical attention. They were instructed in a customary manner by their professors. The vocabulary words were read aloud by the researcher one by one to the students, who then repeated each word two or three times. The equivalent Persian of each word was provided for the students. Ninety vocabularies were taught to both groups, and then, the researchers administered an immediate vocabulary posttest to find out the possible effects of the treatment on the participants' vocabulary recall. Three weeks later, a delayed vocabulary posttest was given to both groups to investigate the impacts of the treatment on their vocabulary retention.

4. Results

In the following tables, both groups' descriptive and inferential statistics on the immediate and delayed posttests are presented. Before presenting the descriptive and inferential statistics, the Kolmogorov-Smirnov (K-S) test was used to check the normality of the pre- and posttest scores. The results indicated that the scores were normal; accordingly, the parametric statistics such as independent sample t -test and paired sample t -test were applied to gain the outcomes.

The descriptive data for both groups are reported in Table 1 of this document. The means of the two groups are almost identical. The typical score for the CG is 14.22, while the mean score for the EG is 14.18. This implies that the two groups are somewhat comparable since they are homogenous at the start of the intervention.

The scores of both groups on the pretest were calculated using an independent sample t -test, shown in Table 2. Due to the fact that the Sig (0.35) is more than 0.05, the difference between the groups is not statistically significant at the 0.05 level. In fact, they did exactly the same thing on the preliminary exam.

When it comes to the posttest, the descriptive statistics for both groups are shown in Table 3. The methods used by the two organizations are distinct. The typical score for the CG is 15.09, while the mean score for the EG is 16.85. Thus, the EG outperformed the CG in terms of performance.

According to Table 4, the difference between the two groups is statistically significant ($p < 0.05$). Indeed, the EG performed better than the CG in the posttest.

The paired sample t -test is used to compare each group's pre- and posttests in the table above (Table 5). Due to the fact that Sig (0.00) is less than 0.05, the difference between the EG's post- and pretest is significant. However, since Sig (0.26) is more than 0.05, the difference between the CG's immediate posttest and pretest is not significant.

The delayed posttest descriptive data for both groups are shown in Table 6. The typical score for the CG is 13.36,

TABLE 1: Group statistics (pretest of both groups).

	Groups	N	Mean	Std. deviation	Std. error mean
Pretest	CG	25	14.22	3.58	0.57
	RG	25	14.18	3.81	0.59

TABLE 2: Independent sample *t*-test (pretest of both groups).

	Levene's test for equality of variances		<i>t</i> -test for equality of means					95% confidence interval of the difference	
	<i>F</i>	Sig.	<i>T</i>	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Equal variances assumed	0.48	0.46	0.20	48	0.35	0.16	0.76	-1.37	1.62
Equal variances not assumed			0.20	47.66	0.35	0.16	0.76	-1.37	1.60

TABLE 3: Group statistics (immediate posttest of both groups).

	Groups	N	Mean	Std. deviation	Std. error mean
Posttest	CG	25	15.09	2.79	0.59
	EG	25	16.85	2.08	0.48

TABLE 4: Independent sample *t*-test (immediate posttest of both groups).

	Levene's test for equality of variances		<i>t</i> -test for equality of means					95% confidence interval of the difference	
	<i>F</i>	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Equal variances assumed	3.59	0.06	-3.83	48	0.00	-2.60	0.67	-3.96	-1.23
Equal variances not assumed			-3.83	44.47	0.00	-2.60	0.67	-3.96	-1.23

TABLE 5: Paired sample test (pretests and immediate posttests of both groups).

		Paired differences			95% confidence interval of the difference		<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	Lower	Upper			
Pair 1	CG Pre/post	0.12	1.69	0.33	-0.57	0.81	0.35	24	0.26
Pair 2	EG Pre/post	-2.64	1.31	0.26	-3.18	-2.09	-10.00	24	0.00

TABLE 6: Group statistics (delayed posttest of both groups).

	Groups	N	Mean	Std. deviation	Std. error mean
Posttest	CG	25	13.36	2.17	0.43
	EG	25	17.48	1.61	0.32

TABLE 7: Independent sample *t*-test (the delayed posttests of both groups).

	Levene's test for equality of variances		<i>t</i> -test for equality of means					95% confidence interval of the difference	
	<i>F</i>	Sig.	<i>T</i>	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Equal variances assumed	5.59	0.01	-7.60	48	0.00	-4.12	0.54	-5.20	-3.03
Equal variances not assumed			-7.60	44.21	0.00	-4.12	0.54	-5.21	-3.02

while the mean score for the EG is 17.48. Both groups seem to be distinct, with the EG outperforming the CG.

Table 7 demonstrates that Sig (0.00) is less than 0.05, indicating that the difference between the two groups is statistically significant at ($p < 0.05$). On the contrary, the EG outperformed the CG in the posttesting period. Shortly put, the data indicate that the EG outperformed the CG on both the immediate and delayed posttesting.

5. Discussion and Conclusion

When this study's findings were compared to the pretest results, it was discovered that there was no statistically significant difference in vocabulary acquisition between CG and EGs. However, the performance of both groups on their immediate and delayed posttests was significantly different. EG actually beat CG on both the immediate and delayed posttests, demonstrating superiority in both domains. We may thank the digital games for this disparity in performance. The kids' vocabulary understanding improved as a result of their participation in the digital activities. The concept of learning vocabulary via games has recently gotten a lot of attention. Donmus [13] asserted that the importance of educational games in language teaching has been rising as a result of their ability to make language instruction more appealing. The combination of games and education may be educational, according to Donmus, and education settings can be appealing when games and education are blended together. When learning via games, students develop more positive attitudes and are more driven to complete their assignments.

The findings of the current study are in line with Hazar [42], who examined the impact of using digital games on promoting Turkish EFL learners' vocabulary learning. His findings demonstrated that the EG outperformed the CG in the posttest, with significant statistical results. In addition, our findings lend support to the findings of Sudarmilah et al. [43], who confirmed that children learn vocabularies easier by using games. The results gained in this study agree with Poondej and Lerdpornkulra [44], whose outcomes revealed that the EG subjects trained via gamification were more engaged in their learning than the CG. Their results showed that gamification was more effective than the conventional teaching method. Our study is advocated by Jannah et al. [45], who confirmed the usefulness of games in teaching English vocabulary.

Games may be a source of enjoyment for students in the classroom and a source of motivation and confidence-building for students. Similar to Aslanabadi and Rasouli [37], who explored the influence of games on enhancing Iranian EFL vocabulary knowledge in kindergartens, the current study results are consistent. The result of their study indicated that games motivated learners and increased their confidence. In addition, the results of our investigation are supported by Ghobadi et al. [46], who inspected the impacts of a game-based application on enhancing exceptional students' English vocabulary learning and concluded that all exceptional students improved their vocabulary skills after training via the game-based application.

Dolati and Mikaili [47] conducted an investigation on the effects of instructional games on the development of students' vocabulary learning, which provided support for this research. Following an analysis of the data acquired via pre- and posttests, they discovered that employing games to teach vocabulary to EFL learners had a substantial impact on their learning. This research gives confirmation to the findings of Ratminingsih et al. [48], who asserted that digital games assist students in learning while playing and come across grammatical patterns in a variety of contexts throughout their play.

Games are usually a favorite among youngsters. Games are associated with the concepts of enjoyment, mobility, and competitiveness. If the same activity is repeated over and over again, children might get bored quickly. Furthermore, their concentration span is less than that of an adult's concentration span. As a result, the instructor must use an effective and innovative way to maintain the students' focus while they are studying the information. One explanation for our results can be the fact that the GBI is a more relaxing and comfortable setting for EFL. Another explanation for the results of our research is that game-based learning provides a more learner-centered context that can lead to language learning enhancement. The other justification for our findings is that games are useful educational instruments that can be utilized in all courses to capture the students' attention, increase interactions, and review the subject matter.

The results obtained in this study may be due to the following features of games:

- (1) Games provide a pleasant diversion from the monotony of the typical language class schedule

- (2) Secondly, they are both inspiring and challenging
- (3) Learning a language takes a lot of work, and games may assist students in putting in and maintaining that effort
- (4) Games give opportunities for language practice in a variety of skill areas, including speaking, writing, listening, and reading
- (5) They encourage pupils to connect with one another and speak with one another
- (6) They provide a particular meaning for the use of words

Based on the findings of this research, it can be stated that the use of games may have a favorable impact on the acquisition of English vocabulary. Learning new vocabulary is a challenging endeavor, and it takes effort to comprehend, generate, and manipulate the target words in order to succeed. Many learners benefit from and are encouraged to participate in games that help them acquire the target language more quickly. They also help teachers create settings in which the target words are valuable and relevant; they also make learning and remembering new words more enjoyable for pupils, allowing them to learn and retain new words faster. In other words, game-based learning may be used to create a meaningful environment in which language learning processes can be carried out. Students get the opportunity to utilize language in a stress-free environment after they have learned and practiced new vocabulary items via games [18]. When it comes to learning vocabulary, games are both beneficial and useful. They are stimulating because they often incorporate friendly rivalry and create a cooperative learning environment, allowing learners the opportunity to study together in a collaborative environment. Students' conversational abilities are enhanced via games, and they have the chance to communicate in the target language [20]. As a result, vocabulary games bring real-world context into the classroom and help students develop their ability to communicate in English in a flexible and conversational manner. It is evident that games play a significant part in teaching and learning vocabulary. However, to get the most out of vocabulary games, it is vital to choose appropriate games for the situation. When selecting a game to be played in class, it is important to consider the students' language competency and cultural background.

Additionally, the game should be beneficial for students with limited language ability and should be simple to implement in the classroom setting. According to these experts, many experienced textbooks and methodological manual authors have stated that games are more than merely time-filling exercises; they also have significant instructional value [28]. The findings of this research provide support for the use of games to teach vocabulary in a stress-free environment. Game-based learning, it is claimed, has the capacity to contextualize the acquisition of new vocabulary terms.

Based on the findings of this research, it can be stated that digital games have a good impact on the learning process. In the classroom, the use of such games fosters high levels of motivation and enhances the learning process of

students as well as their cognitive success. The learning process becomes a lot more pleasurable when children participate, and the tension associated with the learning process is significantly raised when children are involved in such activities. Based on the information presented above, it can be stated that utilizing games to teach English vocabulary is a practical instruction technique.

Several educational implications were discovered as a consequence of the findings of this investigation. The research might represent an effort to make a contribution to the Bangladeshi educational reform movement by advocating the efficient deployment of educational games in Bangladeshi educational institutions. This study indicates that technology-based instruction can be used in Bangladeshi schools, universities, and institutes instead of traditional instruction. The outcomes of this research can encourage the material designers to include some materials related to educational games in future books.

The findings of this study can help students learn English in an innovative way. Using games can enhance students' learning motivation and learning achievement. Increasing the amount of time spent teaching makes it possible to develop the problem-solving ideas students learn in digital GBI. Considering that games present a high level of difficulty and complexity, children must develop cognitive thinking skills prior to participating in games to overcome the difficulties that arise. They must also learn knowledge and interaction skills during the competition or cooperation process. Teachers give kids the chance to learn by working together by enabling them to participate in game play. Participants in games have a strong desire to succeed on their own terms. This motivation keeps students focused on the lesson and the learning throughout the whole activity. Participants may also engage with the subject in a hands-on manner via games, rather than merely being provided with knowledge and expected to recall it.

This study can assist teachers in improving their teaching quality by using games. The use of various games in the teaching-learning process assists instructors in not having to explain too many things to students. The professors discuss the resources that the students will require since they believe that participating in the games will allow them to comprehend the information on that particular day. Due to the fact that they may learn something while playing, games might provide students with a better opportunity to comprehend the content they are being presented with. It is possible for teachers to utilize games to assist them in creating circumstances in which the language is helpful and meaningful. Despite the fact that games are often connected with enjoyment, we should not lose sight of their educational value, which is especially important in foreign language teaching and learning environments. Games are beneficial because they instill motivation in students, reduce students' stress levels, and provide opportunities for actual conversation among language learners.

5.1. Limitations and Suggestions of the Study. Similar to any other research, the current one has several limitations that make the process of extrapolating the findings from it rather

difficult to do. As a result, instructors who want to make use of the results should proceed with extreme care. The first problem is unquestionably the insufficient number of participants for a representative sample of a big population, which is a serious concern. The second topic to mention is the question of gender, which comes up since all of the respondents were male college students. The other point refers to the level of the students; in this study, only the elementary level was included, and other levels were overlooked. The other limitation is the data type; in this study, only quantitative data were used.

In order to conduct a future study, it would be good to examine a bigger sample of people from a variety of different age groups. It is recommended that future research involve participants from both genders in order to get more trustworthy findings. In addition, additional studies are being proposed to investigate the impact of digital games on other abilities and subskills of the English language, such as reading and writing. In addition, it is recommended that future research focus on various language competence levels, including intermediate and higher intermediate, as well as advanced degrees of language competency. Next, studies can use interviews and observations to collect qualitative data to improve the validity and reliability of their results.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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