

# THE EFFECTS OF WEB-BASED TECHNOLOGY QUIZIZZ ON EFL STUDENTS' VOCABULARY ACHIEVEMENT

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**Abstract:** This paper aims to investigate the influences of Quizizz on EFL students' vocabulary achievement and examine learners' perceptions of using this digital app at University of Economics, and Technology for Industries (UNETI) during Covid-19 pandemic. This experimental research was conducted in eight-week intervention of the academic year 2020-2021. Vocabulary test based on the curriculum and interview were employed as data collection instruments to determine their vocabulary achievement as well as perspectives towards the implementation of the online quiz. The statistical findings, which were respectively demonstrated in mean scores, standard deviation and t-test analysis, identified a significant difference between control and experimental class. As indicated, experimental participants have enhanced their vocabulary. Besides, qualitative data contributed deeper insight on students' attitudes towards utilizing Quizizz to teach vocabulary. Several pedagogical implications were recommended for future Quizizz implementation at the institution.

**Key words:** Quizizz, web-based technology, vocabulary achievement

## 1. Introduction

It is important for learners studying English as a foreign language (EFL) to master four skills in terms of writing, listening, reading and speaking. Along with those skills, EFL students are preliminarily required to master language elements regarding grammar, vocabulary or pronunciation. Do and Vo (2021) demonstrated how vocabulary is critical for learners to acquire four English language skills. In listening, adequate language knowledge enables learners to comprehend more easily what others communicate. In reading and writing, having sufficient vocabulary allows learners to express their thoughts clearly and conceive the materials intellectually (Lim & Yunus, 2021). Meanwhile, in speaking, having significant vocabulary offers learners chances to convey their ideas fluently. As a result, EFL individuals could not neglect to develop their own vocabulary acquisition. However, not all learners could apparently manage to acquire the vocabulary.

Nowadays, with the rapid development of science and technology, educators have been employing a variety of digital techniques in language teaching (Lim & Yunus, 2021). One method to ensure effective teaching process is to use internet-based programs or game-based learning. Due to the Covid-19 pandemic, educators have widely utilized online platforms as a way to provide more engaging lessons for their students, instead of simply supplying them with paper-based assignments. Zhao (2019) claimed that students' vocabulary acquisition could be promoted owing to how their cognitive ability could obtain vocabulary; therefore, attempt must be made to ensure learners' prolonged revision not only in class but also at home. The web-

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based technology Quizizz is one of the applications that empowers students to review the material in a collaborative and enjoyable manner (Zhao, 2019). Several researchers discover an increase in the use of Quizizz among pedagogists and their ability to aid in academic achievement; and learning was put into no doubt. According to Nanda, Abdul and Daddi (2018), Quizizz enables students to practice either inside or outside classrooms, which supports learner's autonomy.

At the University of Economics and Technology for Industries (UNETI), although EFL learners have different studying backgrounds, the majority faces similar problems of learning English vocabulary. According to the preliminary observation in real classes, a number of students were uninterested in the lessons presented conventionally by teachers. They continuously lacked concentration and neglected teacher's instruction. Some informal conversations with students reveals that students' lack of vocabulary was firstly the main cause. Secondly, it could be explained that being unable to express their own ideas decreased their confidence and determination to try to speak in class. Furthermore, in the situation of Covid-19 epidemic, both students and teachers could not communicate face to face, but collaborate online, through Zoom application. Thus, it is hard to strengthen the teacher-student interaction in online classes. Consequently, not only would teachers find it difficult to promote classroom atmosphere but students would also feel more inactive and demotivated in catching up with their studies.

As a result, the researcher recognized that an effort must be made to tackle the challenges. Teachers must not only monitor the whole class but also engage students in innovative and entertaining ways to increase their success and encourage them to participate in the lessons. Due to the problems addressed at UNETI and the benefits of using Quizizz as a main supplementary teaching technique, the present study emphasized in examining the influences of Quizizz on students' vocabulary achievement. Hence, two research questions were discussed:

1. To what extent does Quizizz - a web-based technology - influence the students' vocabulary achievement at UNETI?
2. What are students' attitudes towards using Quizizz - a web-based technology at UNETI?

## **2. Literature review**

### **2.1. Vocabulary acquisition**

The definition of vocabulary is demonstrated in both Oxford and Cambridge dictionary as "*all the words known and used by a particular person*" or "*all the words that exist in a particular language or subject*". As described by Day and Bamford (2002), vocabulary is a component of language skills in English as a foreign language (EFL) that learners must acquire in order to listen and talk effectively, as well as to read and write in the target language. Language and lexical units are critical aspects of learning and communication, according to Pigada and Schmitt (2006).

Vocabulary knowledge is one of the most important skills that a second language learner must develop, and is a skill that many academics stress as an essential component of language learning. The process of vocabulary acquisition is complicated and must be

approached systematically in order to help learners in improving their vocabulary acquisition, retention and output. Teaching vocabulary requires a more sophisticated understanding of the differences between receptive and productive vocabulary, the breadth and depth of one's vocabulary knowledge, and the use of direct teaching and contextual inference (Fahimipour & Hashemian, 2013). The effect of technology-mediated language learning on vocabulary acquisition has been studied extensively in recent years (Chapelle, 2007; Fahimipour & Hashemian, 2013; Nanda et al., 2018; Mei, 2018; Lim & Yunus, 2021). It has contributed to a greater understanding of this issue, demonstrating that technology-assisted language instruction can be advantageous for learners' vocabulary achievement (Chapelle, 2007). It has been argued that technology can support learning in a number of ways, one of which is using digital technology to promote vocabulary development. Moreover, Reinders and Wattana (2015) state that technology-assisted lessons engage students in their learning. Ebner and Holzinger (2007) discover that game-based activities have adverse effect on students' interaction with its features such as leaderboards, badges, points or amusing images. Such positive responses related to students' engagement, satisfaction and motivation are reported in Do and Vo (2021).

## **2.2. Quizizz as a web-based technology used in EFL classroom**

### ***Definition of Quizizz***

According to Nanda et al. (2018), Quizzes is defined as an educational web-based technology which integrates multiplayer activities into either real or virtual classrooms. In fact, this game-based software could help create more collaborative and enjoyable class exercises to stimulate students' engagement. Learners might use their own digital devices such as mobile phone, laptop, iPad, or computer connected to the Internet to complete the assigned tasks. It is claimed that Quizizz incorporates gaming elements such as avatars, themes, memes and music into the learning process. Additionally, Quizizz allows students to compete with their peers, which raises their higher level of awareness towards studying process (Rahayu & Purnawarman, 2019). Students take the quiz simultaneously in class and may monitor their own progress on the leaderboard; meanwhile, the instructor observes the whole process and obtain the completed report to assess players' performance. By entering this education-assisted website, students could experience more fun and pedagogical lessons; hence, pique their curiosity and enhance their participation (Zhao, 2019).

### ***Quizizz learning tool***

Chandler (2015) demonstrated the basic steps to deploy Quizizz as a web-based application in an EFL class. First and foremost, Quizizz enables instructors to rapidly convert lessons into engaging multiplayer games for students. Users can get access on any devices with a browser, and utilize activities created by teachers for specific objectives. More advantageously, students are not required to register or set a password-secured account to access Quizizz. In the second place, after entering the game code or clicking the address link delivered by teachers, students can play the game. After the online competition, teachers will get a comprehensive, downloadable and stored report of each participant's answers. Finally, there are options to mix the question order, set exact timers, and show answers at the end of the quiz. This web-based technology, moreover, either adds some lightheartedness into the mixed-level

students or significantly allows instructors to gauge how the students are exercising with the target language. In a nutshell, Quizizz is considered as a useful and motivating learning device.

### **2.3. Previous studies**

A study conducted by Mei (2018) investigated the impacts of Quizizz as a game-based teaching method in the lecture hall at Sultan Idris Education University with about 85 participants. Students were observed to ignore their learning in most of the class time, thus Quizizz was played for 20 minutes before ending the class. It was compulsory for students to complete a set of questions, which recorded their involvement during the implementation of Quizizz. The findings analyzed from class observation and questionnaire indicated that students exhibited positive attitude towards Quizizz as an online teaching and evaluation tool during Arabic lessons.

Rahayu and Purnawarman (2019) carried out a research to discover the use of Quizizz to improve students' grammar on the population of fourteen senior high-school students in Indonesia. The tools used were observation to see how they were doing self-assessment, and interviews which gave in-depth data on their self-awareness practices. The findings indicated that participants were able to employ self-assessment as a consequence of identifying their strengths and weaknesses. Among three separate exams, the majority of students demonstrated a notable improvement in their grammatical knowledge. This research was believed to contribute to the innovation of self-assessment with the implementation of Quizizz.

Lim and Yunus (2021) focused on teachers' perspectives about Quizizz in English instruction. The mixed-method methodology with Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) approach was utilized the most to collect teachers' opinions and attitudes on Quizizz in the teaching and learning English. The study's findings after being analyzed descriptively and comparatively revealed that Quizizz was approved owing to its efficacy, practicality and ease of use to stimulate learners. The research also recommended expanding the use of Quizizz from the viewpoint of parents.

In Vietnamese teaching context, Pham, Vo and Huynh (2021) investigated the effectiveness of Quizizz games in English classrooms at Van Lang University. Since classroom activities affect students' academic learning, the authors assumed that a quick way to invigorate students is to use Quizizz to get them engaged in English classes. Data was gathered from 90 non-English major students through two collecting instruments, namely questionnaire and interview. The results indicated that students had favorable views about Quizizz games and claimed that Quizizz live competition were helpful, appealing and collaborating.

Sharing the same viewpoint towards this web-based technology, Do and Vo (2021) explored the advantages of Quizizz on students' vocabulary acquisition. The authors employed mixed methodology with the assistance of vocabulary test and interview. The statistics indicated that there was a significant change in students' vocabulary achievement over time. Students reported that they felt less stressful and more excited in vocabulary learning. Moreover, they suggested Quizizz should be utilized in further lessons to help them raise confidence and comfort in EFL classes.

### **3. Methodology**

#### **3.1. Research design**

This study is an experimental research in which the control group was taught vocabulary through paper-based activities; meanwhile, the experimental class was acquainted to the implementation of Quizizz to acquire new vocabulary.

#### **3.2. Participants**

The population of this study was 57 first-year students from Faculty of Business Administration. They are considered to be at elementary level of English proficiency. They were divided into two classes which the researcher took charge of teaching. The main textbooks are Market Leader and Very Easy TOEIC 1. The participants are thought to know the vocabulary included in each unit. The research was carried out in 8 weeks, from March 29<sup>th</sup> to May 31<sup>st</sup>, academic year 2020-2021.

Class BA1, including 29 first-year students, was regarded as the control group who studied with the traditional method of using paper-based activities; whereas class BA2 with 28 students is experimental class which practiced the vocabulary exercises on Quizizz on their digital devices such as laptop, tablet, or mobile phone.

#### **3.3. Data collection instruments and analysis**

Vocabulary test and interview were employed to gather data in this research.

The vocabulary test consisted of 50 multiple-choice items which were designed in the format of Part 5 of the TOEIC reading test. Those incomplete sentences might deal with meaning, preposition, word form, connecting word and adverb-class, relative pronouns or types of pronouns. The test was designed with vocabulary presented in both coursebooks in order to evaluate how well students could apprehend. It was delivered to several lecturers from Faculty of Foreign Languages to crosscheck and edit. For the control group, the test under the form of worksheet was designed with similar items, while experimental students had to do the quiz on Quizizz website. All of them took the test in week 7 to check both classes' vocabulary scoring. The statistical data was analyzed through SPSS software.

One week after the test, the researcher conducted interviews with the top ten and the bottom ten among experimental participants, they were numbered from student 1 to student 20. It could be explained that would provide deeper insight students' perceptions towards the use of Quizizz. The interview was in mother tongue to avoid ambiguity and misunderstanding. The qualitative data was interpreted through six steps, including transcribing, separating, categorizing, coding, describing and linking to similar themes to illustrate the results.

### **4. Findings and discussions**

#### **4.1. The influence of Quizizz on students' vocabulary achievement at UNETI**

The numeric data was analyzed to answer the first research question. Table 1 below showed the statistical results of the vocabulary test of control group and experimental group after the treatment with Quizizz.

**Table 1.** Results of the vocabulary test of control group and experimental group

Group	Mean	Standard Deviation	Max score	Min score
Experimental	83.79	6.538	97.00	72.00
Control	78.16	6.535	90.00	67.00

Table 1 shows that for the experimental class, the mean score was 83.79; meanwhile the control class' mean score was 78.16; the standard deviation of the two classes was estimated at 6.538 and 6.535 respectively.

**Table 2.** Result of independent sample t-test on the vocabulary test score

		Independent Sample 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
Score	Equal variances assumed	.066	.786	3.741	62.982	.000	6.056	1.618	2.818	9.289
	Equal variances not assumed			3.741	62.930	.000	6.056	1.617	2.817	9.287

According to the results shown above, the students' vocabulary mastery scores in the experimental group and the control group were significantly different because the value of Sig. (2-tailed) was calculated lower than 0.05. Therefore, it could be claimed that there is a significant mean difference between students in experimental class and ones in control class. A possible explanation might be analyzed from the interview. It is due to experimental students' gradually forming their habit of revision the previous lessons so as to win the online quiz, which is in line with Lim and Yunus (2021), Do and Vo (2021).

The displays from Table 2 demonstrated the result of hypothesis testing through equal variances assumed. Independent t-test yielded the result of t-observed statistic at 3.741 and p-value in the Sig. (2-tailed) was smaller than 0.001. Those above figures implied that there was a remarkable difference between experiment's and control's score. In other words, the experimental group significantly outperformed the control one. As a result, it showed that the Quizizz website has a statistically significant impact on students' ability to learn vocabulary.

**Table 3.** The effect size of the test

Class	No.	Mean	Standard deviation	Cohen's d
Experimental	29	83.79	6.538	0.861
Control	28	78.16	6.535	

Cohen's d is the appropriate effect size measure if two groups have similar standard deviations and are the same size. From Table 3, the statistics of Cohen's d was calculated at 0.861. This reasonably implied that there was a significant difference in a high degree of impact

of treatment across the groups. It followed that the implementation of Quizizz application has beneficial impacts on students' ability to learn vocabulary.

#### 4.2. Students' attitudes towards using Quizizz at UNETI

From the qualitative data analyzed from interviews, it could not be denied that most of the students reported favorable reflections on Quizizz games in the classrooms. Owing to the questions about the reasons why this web-based technology was popular, participants reflected that the games enabled them to view the questions and all potential answers which are shuffled in every match of game. This prevents students' repetitive responses without reading the questions. The scrambled questions encouraged "gamers" to be ready and focused on each round. Secondly, students discovered that Quizizz was enjoyable with various memes, music and colorful images which compelled them to like it. This aligns with the results in Do and Vo (2021) and Pham et al. (2021) that Quizizz display was colorful and appealing to players. An interviewee shared his view that:

*Quizizz games are my favorite since I can learn so much in such a short amount of time. While the lesson isn't very enjoyable, it's more interesting. I am excited for the English lesson to engage in fun activities to test my knowledge and evaluate whether I did a good job with any portion of the course.*

A respondent added more details to the game's attraction:

*I really like the memes and the music that plays when I complete my row and successfully answer a lot of questions. I love the ranking factor of the games. It doesn't have the capability to divert my attention from the monitor.*

It is believed that students showed positive attitudes towards using Quizizz in classroom. Concerning students' engagement to technology-based lesson, some students confirmed their involvement in Quizizz live games on their digital mobiles. It could be seen the similar findings in studies conducted by Do and Vo (2021), Pham et al. (2021) and Zhao (2019). Every quiz raised students' interest and stimulation in participating and winning the competition among class members. In order to get a better score, students were required to answer questions as quickly and precisely as possible. Additionally, the appearance on the top leaderboard motivated them to work harder. Only one student confessed:

*"I scared finishing last on the leaderboard, so the games make me work harder and keep me motivated."*

One student shared her opinion on the convenience of this educational game that

*"I really like Quizizz, since it is a good tool for those who are not intimidated by its features. I do not need to register, just a code given by my teacher"*.

Besides, most of the interviewees had the same idea that Quizizz was competitive. One said:

*"The leaderboard on the left shows where I currently am in the game and it encourages me to strive for better position. I prepare to compete more frequently now than before."*

Thanks to Quizizz, student collaboration can increase students' effort and constructive behavior (Parsons & Taylor, 2011; Pham et al., 2021). Furthermore, the primary impacts of Quizizz on learning are, firstly, to help most of students feel less nervous, just like playing the digital game to relieve stress and pressure (Asib et al., 2019, Nanda et al., 2018) and secondly, promote their vocabulary retention in accordance with raise their level of concentration and engagement in class (Mei, 2018; Lim & Yunus, 2021).

The interviews show that students were enthusiastic when they played all the games built for review on Quizizz. The quizzes drew their attention and everyone recalled each answer when they finished it. It is reasonable that learning English benefited by their playing Quizizz live games in class. Games relatively helped in their preparation for the test and increasing their vocabulary acquisition. The study result might be consistent with the studies by Zhao (2019), Parson and Taylor (2011).

A student reported:

*"I appreciated this activity because i can learn from my errors and my classmates all benefit from it. Students have to work harder in order to win. I believed I paid more attention to my teacher's lecture since it would assist me later in the game".*

Quizizz activity, moreover, promoted students to review their old lessons. This could be included from what the majority of the participants discussed that they had already reviewed knowledge before attending class so as to run their race in the game. To be illustrated, it made them feel more confident for the next quiz. Quizizz website was reported to be more enjoyable than simply writing on paper. The reason for this might originate from students' curiosity and interest in playing digital games which makes them forget to be in a real lesson in a while. Results from Pham et al. (2021) and Asib et al. (2019) supported the similar advantages of Quizizz in various teaching contexts.

However, several students also reflected their disappointment when they lost the games. It could probably be explained that they might felt confused and depressed at that time due to the factors in relation to their self-esteem and fear of losing.

## **5. Conclusions and recommendations**

In a nutshell, it was found from the results of the findings and data analysis that Quizizz application aided first-year students' vocabulary achievement at UNETI. It was proved by not only the descriptive and inferential statistics but also qualitative analysis. It could be assumed that the experimental class did better than the control class thanks to the implementation of Quizizz as a web-based technology. Additionally, inferential analysis revealed that the t-observed value of the data was greater than the t-critical value; therefore, the results established a substantial impact of using the web-based technology, namely Quizizz, on students' vocabulary achievement. From the interview data, the researcher found that students had favorable views towards the app of Quizizz in EFL classes. The experimental group could see the activities became more engaging, inspiring and intriguing. The qualitative data also reported students' interest in appealing image of the online quiz, which was also indicated as one of the determining factors on students' motivation and engagement in class. As a result, the quiz game might turn the unenthusiastic classroom into a lively and energetic learning environment.

However, some recommendations also need to be implemented to get the greatest level of efficacy with Quizizz. Owing to the positive results, the researchers have firstly urged academic staff and lecturers to use Quizizz games in the classes. If a more appropriate course with curriculum and teaching methods was redesigned, students' perspectives towards English learning in general and vocabulary learning in particular would change for better and more stimulation. Secondly, the education institution should provide teachers and students high-tech studying facilities. By doing that, not only would teacher and students apply Quizizz in offline classes, but they could create more lessons with digital technologies so as to motive and support students. Last but not least, students themselves should practice more exercises with Quizizz apps. This could either promote their self-esteem or raise their confidence in learning vocabulary.

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## ẢNH HƯỞNG CỦA QUIZIZZ - CÔNG NGHỆ TRÊN WEB ĐỐI VỚI THÀNH TÍCH HỌC TỪ VỰNG CỦA SINH VIÊN EFL

**Tóm tắt:** Nghiên cứu thực nghiệm này tìm hiểu tác động của ứng dụng Quizizz lên thành tích từ vựng của sinh viên và nhận thức của họ với việc áp dụng công nghệ này tại trường Đại học Kinh tế - Kỹ thuật Công nghiệp. Công cụ thu thập dữ liệu là bài kiểm tra từ vựng và phỏng vấn. Kết quả thống kê thể hiện qua trị số trung bình, độ lệch chuẩn và kiểm định t đã cho thấy sự khác biệt đáng kể giữa điểm số của lớp thực nghiệm và lớp kiểm soát. Điều này cũng cho thấy sinh viên lớp thực nghiệm nâng cao được vốn từ vựng. Dữ liệu định tính giúp người đọc nhận biết thái độ của sinh viên với Quizizz trong việc học từ vựng. Nghiên cứu cũng đưa ra khuyến nghị để triển khai việc áp dụng Quizizz trong tương lai.

**Từ khóa:** Quizizz, công nghệ trên web, thành tích học từ vựng