Students’ experience of online game-based assessment tool during emergency remote teaching

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Abstract. Emergency remote teaching makes teachers should review the appropriate way of assessing students appropriately. Various programs and applications have been developed to assess students online. However, as learners do not always perceive learning tool effectiveness in the same way as educators, this study tries to investigate the perspectives of learners regarding the use of game-based assessment tool, namely Quizizz. The perceptions of sixty freshmen college students regarding the use of this tool are documented using questionnaires. The main findings of the study show that the students demonstrated positive attitudes towards the use of Quizizz during emergency remote teaching. They perceived it as a useful program that was easy to use, and they reported the intention to use it in the future in the post-pandemic era. Besides, this program could enhance students’ learning engagement in terms of cognitive, behavioral, and emotional engagement. It, therefore, can be concluded that Quizizz becomes an alternative way of assessing the students online, while at the same time promoting their learning engagement.

1. Introduction

Due to worldwide COVID-19 outbreak, the academic institution have been enforced to entirely cancel face-to-face teaching including laboratories and other learning experiences as a mitigation step against the risk posed by the virus. This creates a situation called emergency remote teaching which is defined as a sudden interim shift of instructional delivery to an online delivery mode as a result of an immense catastrophe, in contrast to the online courses which are initially planned and designed to be delivered virtually [1]. Emergency remote teaching comprises ultimate exploitation of the available remote teaching tools for delivering the curriculum or educational materials that would normally be delivered physically or as hybrid or blended courses.

However, remote teaching and learning activity is not seen to be as effective than traditional way of delivery. Teachers and students always complaint about how to get effective way of remote teaching activity during the pandemic situation. This mode of teaching has left the teachers overworked and also abusive behaviour from students. For many students, this mode of teaching can be a new experience and even when they have the best intentions, they can easily get distracted and loose interest. This can cause a higher number of students dropping out of school resisting classes.

While engaging students online can be more challenging [2], the learning experience can be as good or even better than in traditional physical classroom. With proper planning and tools, remote teaching can be as effective as in-person teaching [3]. This can happen if the teachers use appropriate digital tools for the activity, e.g., Quizizz which is one of digital tools usually used for assessment. This allow the
instructor to create an online live quiz or homework assignment. This digital tool also offer benefits for the students such as avoiding boredom of online class. However, little is known about how this digital tool is operated and how the students gets benefits from the tools. Accordingly, this study was mainly designed to answer the following research questions:

- Q1: What were students' preferences regarding the use of Quizizz during online learning?
- Q2: What were students' attitudes towards the use of Quizizz during online learning?

2. Methods

In an attempt to answer the research questions comprehensively, this research used a mixed-method design, which allows for both qualitative and quantitative data to be collected in a single study. Data for the study was obtained from an online questionnaire and semi-structured interviews. This mixing or blending of data provide a stronger understanding of the problem or question than either by itself [4].

Quizizz was introduced to the participants in a state university in Indonesia in the first week, and students were shown how the program worked and how they could use it. The instructor explained in detail where to find the program, how to download it, how to create an account, how to find study classes, and how to join study classes and how to do the main activity. During the first week, one of the researchers asked the students to download the application on their mobiles and join the online class that had been created in Quizizz, which contained some items related to lessons and added in advance by the researcher. These items were used in lessons both collaboratively and individually during the first two weeks in order to increase students' familiarity with Quizizz.

In the following weeks, students were asked to start using Quizizz and answering the items in it. This application was used in almost all of the classes throughout the semester, and students were encouraged to use it in a live session synchronously and as a task asynchronously. After fourteen weeks, a survey questionnaire regarding students' experience of using Quizizz was administered, and participants were asked to complete it voluntarily. The researchers also asked for volunteers to participate in short interviews about their experience of using Quizizz. Eight students volunteered to participate in the online interviews.

Since this study employed a convergent parallel mixed-methods design, the researcher collected qualitative and quantitative data concurrently, analysed them separately, and, finally, combined the results to obtain more rigorous answers to the research questions. Statistical Package for Social Science (SPSS) software was used to analyse the quantitative data. Descriptive analysis was calculated, as well as Pearson's correlation with specific items. The tape-recorded interviews were then transcribed and qualitatively analysed using two stages of coding, in an attempt to answer some of the research questions and to complement the quantitative results of the questionnaire [5].

3. Results and discussion

The first research question related to students' preferences regarding the use of Quizizz in the teaching and learning. To answer this question, the participants were asked in the questionnaire to report whether they preferred using computers or smartphones to operate Quizizz. They were also given a list of Quizizz features and asked to choose the features they preferred.

All of the participants preferred operating Quizizz with their smartphones rather than computers. When asked in the interviews about their preference for using smartphones rather than computers, they emphasized the smartphones' ubiquity, portability, availability, and ease of use as the reasons behind their choices. For example:

 Student F: "I prefer using Quizizz in my phone because it is faster and available all the time. I have my phone all day long. I would not open my PC to use it. I don't want to sit in a specific place to use Quizizz."

 Student C: "I prefer using a mobile application because the mobile is portable. Actually, I have not tried it on PC because I don't have a personal PC or laptop, but I have a personal mobile. I don't need a PC, I do most of my work on my mobile."
Student E: "The mobile is fast and easy to use, and you can use it anywhere. It is easy just to start using it."

To answer another research question related to students' attitudes towards using Quizizz, the last ten items in the questionnaire were analysed. The descriptive statistics are reported in this section. The Cronbach's alpha of this part of the questionnaire was $\alpha = 0.84$, indicating a high level of internal consistency of the questionnaire items. The descriptive statistics (means and standard deviations) of the three constructs are presented in Table 1, which shows that students demonstrated overall positive attitudes towards Quizizz. The highest levels of agreement occurred for PU ($M = 4.18$, $SD = .64$) and PEOU ($M = 4.12$, $SD = .68$). Although the mean for BI was not as high as the mean for the first two constructs, it nevertheless indicated a high level of agreement ($M = 3.78$, $SD = .91$). In sum, the majority of the participants perceived Quizizz as a useful tool for that was easy to use. They also reported an intention to use it in the future.

All of the four items in PU received responses with means higher than 4, which indicated a high level of agreement. Similarly, the means of the four items in PEOU ranged from ($M = 3.82$) to ($M = 4.32$). Although the first item in BI had a mean of less than 4 ($M = 3.45$, $SD = 1.20$) which was the lowest mean of the ten items in the questionnaire, the second BI item had a mean of greater than 4 ($M = 4.11$, $SD = .92$), which indicated a general tendency towards using Quizizz.

Table 1. Students' attitudes towards Quizizz (PU, PEOU, and BI).

| Perceived Usefulness (PU) | N  | Minimum | Maximum | Mean  | Std. Deviation |
|--------------------------|----|---------|---------|-------|----------------|
| I was able to learn from the items on Quizizz | 38 | 2.00    | 5.00    | 4.16  | .68            |
| Using Quizizz improved ability. | 38 | 2.00    | 5.00    | 4.13  | .74            |
| Using Quizizz made it easier to learn | 38 | 1.00    | 5.00    | 4.26  | .86            |
| I think Quizizz was useful in online class. | 38 | 1.00    | 5.00    | 4.16  | 1.08           |
| Total                    | 38 | 2.25    | 5.00    | 4.18  | .64            |

| Perceived Ease of Use (PEOU) | N  | Minimum | Maximum | Mean  | Std. Deviation |
|-----------------------------|----|---------|---------|-------|----------------|
| It was easy for me to operate Quizizz. | 38 | 2.00    | 5.00    | 4.18  | .80            |
| It was easy for me to become skillful at studying with Quizizz. | 38 | 2.00    | 5.00    | 3.82  | .93            |
| Learning how to study with Quizizz was easy for me. | 38 | 2.00    | 5.00    | 4.16  | .89            |
| The Quizizz website and/or mobile app was clear and understandable. | 38 | 1.00    | 5.00    | 4.32  | .93            |
| Total                      | 38 | 2.25    | 5.00    | 4.12  | .68            |

| Behaviour Intention (BI) | N  | Minimum | Maximum | Mean  | Std. Deviation |
|--------------------------|----|---------|---------|-------|----------------|
| I intend to use Quizizz in the future. | 38 | 1.00    | 5.00    | 3.45  | 1.20           |
| If it is offered, I intend to have a test using Quizizz. | 38 | 2.00    | 5.00    | 4.11  | .92            |
| Total                    | 38 | 1.50    | 5.00    | 3.78  | .91            |

In an attempt to quantitatively examine the extent to which PU and PEOU can influence BI, Pearson's correlations were calculated to show the relationship between these constructs. As shown in Table 2, a Pearson's $r$ data analysis revealed a moderated positive correlation between PU and BI and between PEOU and BI ($r = .57$ and $r = .37$, respectively). Students who perceived Quizizz as a useful and easy to use application reported a greater intention to use Quizizz.
### Table 2. Pearson's r for PU, PEOU, and BI.

|                      | Perceived_usefulness | Perceived_ease | Behavioral_intention |
|----------------------|----------------------|----------------|----------------------|
| **Perceived_usefulness** | Correlation          |                |                      |
|                      | 1                    |                |                      |
| Sig.                 |                      |                |                      |
| N                    |                      |                |                      |
| **Perceived_ease**   | Correlation          | 1              |                      |
|                      | .593**               |                |                      |
| Sig.                 | .000                 |                |                      |
| N                    | 38                   |                |                      |
| **Behavioral_intention** | Correlation          | .366*          | 1                    |
|                      | .569**               |                |                      |
| Sig.                 | .000                 | .024           |                      |
| N                    | 38                   | 38             |                      |

**. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

To complement the quantitative results obtained from the questionnaire regarding students' attitudes, the interviews gave students the chance to describe their attitudes in further detail. All of the participants in the interviews demonstrated a positive attitude towards Quizizz. They perceived it as a useful learning tool that could support several aspects of vocabulary learning. For example:

Student G: "Using the feature (Live) in class was very competitive, and it encouraged us to study before class to beat other groups. And, as you know, this is a way of learning. It was a combination of fun and learning at the same time."

Student F: "Studying vocabulary from books is boring, whereas using a phone is much more interesting because it is like using a phone for social networking or games applications."

The interviews with the students also showed that they perceived Quizizz as an accessible learning tool they could use to study English vocabulary. For instance:

Student F: "Using Quizizz is easier than opening a book to learn words as in the traditional way of learning vocabulary."

Student G: "The application was super easy, and the design was amazing. I found it a user-friendly application."

The overall results of the study revealed that the students demonstrated positive attitudes towards using Quizizz during emergency remote teaching. In the present study, the vast majority of the participants perceived Quizizz as a useful tool that made it easier and faster to learn and improve their ability to answer the items in a way that was interesting, fun, and competitive. They also considered it a user-friendly program that was clear, and well-designed. Furthermore, some participants emphasized that using Quizizz was much more comfortable and more convenient than using paper-based test. Participants in this study also reported a strong intention to use Quizizz in the future. This is in line with the previous studies [2,3,6] which reveals the future use of application.

In terms of students' preferences regarding the use of Quizizz, all the participants preferred using the program on their mobiles rather than their PCs because of smartphones' ubiquity, portability, availability, and ease of use. This supports the previous work [6] that found that the majority of study participants preferred using digital tools via mobiles although PCs offered more features and information. This is in line with previous studies [6-14] in which students have reported positive attitudes towards the application in their mobile phone.
4. Conclusion
The main purpose of this study was to investigate the perceptions of university students of Quizizz as a
digital assessment tools during emergency remote teaching. This type of study is essential because
learners’ perceptions of the application do not always match the conceptions of educators [2]. In
conclusion, the present study highly recommends using Quizizz for digital tools since it is a useful tool
that can be utilized in synchronous and asynchronous mode. It is also recommended because it has a
user-friendly design and offers a range of learning features that can meet the different goals and needs
of learners.

References
[1] Hodges C, Moore S, Lockee B, Trust T and Bond A 2020 The difference between emergency
remote teaching and online learning. Educause review 27 1-2
[2] Beres D L 2011 Mobile-assisted language learning from the student perspective: Encouraging
effective language learning strategies outside of the classroom Academic podcasting and
mobile assisted language learning: Applications and outcomes pp 93-110
[3] Stockwell G and Hubbard P 2013 Some emerging principles for mobile-assisted language
learning The International Research Foundation for English Language Education 2013 1-5
[4] Creswell J W 2009 Research design: Qualitative, quantitative, and mixed methods approaches
(Thousand Oaks, CA: SAGE Publication, Inc.)
[5] Dornyei Z 2007 Research methods in applied linguistics: Quantitative, qualitative, and mixed
methodologies (Oxford: Oxford University Press)
[6] Saeidi M and Mozaheb M A 2012 Comparing vocabulary learning of EFL learners by using two
different strategies (mobile learning vs. flashcards) International Journal of Mobile Learning
and Organisation 6(3-4) 303-15
[7] Dizon G 2016 Quizlet in the EFL classroom: Enhancing academic vocabulary acquisition of
Japanese university students Teaching English with Technology 16(2) 40-56
[8] Alavinia P and Qoitassi K 2013 On the Viability of Vocabulary Learning Enhancement through
the Implementation of MALL The Case of Iranian EFL Learners. Journal of Language
Teaching & Research 4(2)
[9] Basoglu E B and Akdemir O 2010 A comparison of undergraduate students' English vocabulary
learning: Using mobile phones and flash cards Turkish Online Journal of Educational
Technology-TOJET 9(3) 1-7
[10] Lander B 2016 Quizizz: What the students think - a qualitative data analysis CALL communities
and culture - short paper from EUROCALL 2016 pp 254-259
[11] Chwo G S, Marek M W and Wu W C 2018 Meta-analysis of MALL research and design System
74 62-72
[12] Lam E T, Wang L C and Zhao X W 2018 Students' perception of Quizlet as a Chinese learning
tool: a preliminary study International Journal of Technology Enhanced Learning 10(1-2)
128-36
[13] Leis A, Tohei A and Cooke S D 2015 Smartphone assisted language learning and autonomy
International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)
5(3) 75-88
[14] Marek M W and Wu W C 2014 Environmental factors affecting computer assisted language
learning success: a Complex Dynamic Systems conceptual model Computer Assisted
Language Learning 27(6) 560-78