AN INVESTIGATION INTO UNDERGRADUATE STUDENTS' PERCEPTION OF KAHOOT MEDIATED E-ASSESSMENT

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Abstract: This study is an endeavor to depict undergraduate students' perception of a digital game-based learning (DGBL) platform called *Kahoot*! integrated into the undergraduate students' learning. To this end, a sequential explanatory study was employed. Undergraduate students from a private university in Indonesia (N=21) agreed to participate in this study. A web-based five-point Likert scale questionnaire was developed to examine their perceptions of this platform. A focus-group interview was also conducted to detect their in-depth feelings. The results indicated that they positively appreciated the integration of this tool into classroom instructions. Implications, conclusion and limitations were then discussed.

Keywords: Digital Game-based Learning (DGBL); E-Assessment; Gamification; *Kahoot!*.

INTRODUCTION

These days, the majority of students are Z-learners or Digital Natives (Prensky, 2001a, 2001b) who have spent their entire lives with various tools of the digital age. These phenomena have become a serious challenge for Higher Education (henceforth, HE) institutions to stay renewed by adapting to these changes and constantly improving both the quality of their teaching-learning practices and policies so that the pedagogical practices will remain effective and competitive (Bidin & Ziden, 2013, p. 720). Also, the ways of doing teaching need to be suited to this changing nature of learning (Suherdi, 2019) by, for instance, providing ample opportunity to the

students to access and use more online learning content using various digital tools (Kukulska-Hulme, 2012).

As the new generation of technology-savvy students (Kukulska-Hulme, 2012, p. 247), they obviously expect to have more exciting and contemporary teaching methods and media replacing traditional textbook-based lecturing and unattractive learning environments (Batsila & Tsihouridis, 2018; Tan & Liu, 2016; Tan, 2015). Indeed, to tackle these challenges, the instructors must strive to create a more entertaining lesson and consider the new innovative approach using various digital devices incorporated into the pedagogical processes in the classroom, so that these digital tools can serve the bridge between one-way learning environment and student-centered learning (Nawahdah, 2018; Viberg & Grönlund, 2013). To this end, it can be achieved by turning it into a game but at the same time enabling them to increase their motivation, classroom interaction, and cognitive level (Batsila & Tsihouridis, 2018, p. 565; Dehghanzadeh et al., 2019; Hanus & Fox, 2015).

Literature confirms that gamification, the practice of using game-like mechanics in non-game contexts (Baptista & Oliveira, 2019; Brigham, 2015; Brophy, 2015; Cruaud, 2016; Deterding et al., 2011; Domínguez et al., 2013; Yıldırım & Şen, 2019), has received increased attention in the educational sector for its multiple benefits (Karagiorgas & Niemann, 2017). The gamification mechanism incorporating into the teaching-learning scenario will be a motivational factor for the students to create a more active and attractive learning atmosphere in the classroom (Guardia et al., 2019), foster students' engagement (Huang et al., 2018; Millis et al., 2017), and enrich their online learning experience (Brophy, 2015).

Compared to the other gamification applications, *Kahoot!* is the students' most favorite gamification application (Wang & Tahir, 2020). It is a free-access mobile application for the teachers of all disciplines at various levels. Besides, it is a real-time DGBL platform that has achieved world-wide recognition of over 70 million users (Wang & Tahir, 2020). This platform was, therefore, the ideal choice

for this study as it is prevalent, easy to use, free access, and promotes learning in an entertaining way (Bawa, 2018, p. 3).

Furthermore, a large number of prominent scholars have investigated the potential of mobile devices in assisting the pedagogical practices (Al-Hunaiyyan et al., 2018) and the uses of online-based tests (Khairil & Mokshein, 2018) in various realms (Awedh et al., 2014; Azar & Nasiri, 2014; Brophy, 2015; Gani et al., 2016; Hou, 2018; Özdener & Demirci, 2018; Wang, 2015). However, empirical research with regard to university students' perceptions towards the integration of mobile devices into an informal assessment procedure is relatively less well documented, particularly in EFL context in Indonesia. The probable causes are with respect to the way the teacher perceives their use and functionality (Yunus, 2007, cited in Golshan & Tafazoli, 2014), a low-level experience of users or technophobia of educators (Celik, 2013), and IT infrastructure investment (Alsswey & Al-Samarraie, 2019; Celik, 2013; French et al., 2014). Hence, this current study aims to seal the gap in those existing literature. With these considerations in mind, to expand the empirical research findings on the utilization of *Kahoot!* in HE context in Indonesia, the current study aims to investigate the Indonesian undergraduate students' perceptions of the in-class use of *Kahoot!* as a formative assessment tool.

LITERATURE REVIEW

Digital Gamification in EFL Context

The term gamification was originally used in the field of marketing (Bonenfant & Genvo, 2014, cited in Cruaud, 2016). Within the areas of educational scenarios, it is clearly defined as a collection of tasks or procedures to overcome issues concerning learning and education by utilizing the game-based mechanics (Kim et al., 2018, p. 29).

In recent years, scientific literature on gamification has become a growing phenomenon for instructional contexts situated in various disciplines at different levels of education; in primary school

(Halloluwa et al., 2018), middle school (Hsu, 2016), high school (Stoyanova et al., 2018), and university (Bouchrika et al., 2019; Buckley & Doyle, 2016; Hassan et al., 2019).

This game-based instruction may also be performed using digital devices. Within this context, a wealth of contemporary literature on digital games has been published in the context of language learning. In Japan, a recent study investigating Japanese college students' perceptions towards the use of digital games in English-language learning has claimed that the majority of the participants perceived the utilization of digital games as positive (Bolliger et al., 2015). In Iran, researchers have claimed that the digital video game is proved to generate high school students' language learning motivation (Ebrahimzadeh & Alavi, 2017). In Norway, an empirical study conducted in a second-year high school in Oslo has verified that the use of gamification mechanism in foreign language learning courses is auspicious (Cruaud, 2016). In the USA, researchers have also acknowledged that a mobile gamification application is highly convenient for teaching Spanish to elementary students (Rachels & Rockinson-szapkiw, 2017).

While those overall findings have indicated that digital gamification has demonstrated the massive potential benefits in education domain, however, some scholars have presented a list of critic points on this issue. Some of them are (1) distraction from learning goals (Bolliger et al., 2015; Kocadere & Çağlar, 2015; Snow et al., 2015), (2) health concerns (Bolliger et al., 2015), and (3) lack of frameworks for planning and gamification set-up in a learning contexts (Ding, 2019; Toda et al., 2018).

E-Assessment

For many years, the term ''assessment", evaluating the quality of sequences of instructional activities after the sequence was completed (Wiliam, 2011, p. 3), serves two significant purposes: summative and formative assessment (Ismail et al., 2019; Yan & Cheng, 2015). The practice of formative assessment itself can be

performed in various ways, including traditional paper-based assessment and assessment using information communication technologies (ICTs), also known as e-assessment (Bahar & Asil, 2018; Stödberg, 2012).

As today's students are technology-savvy and avid users of numerous online virtual platforms (Khairil & Mokshein, 2018; Lister, 2019), teachers should gain a considerable advantage to make their learning more meaningful by, for example, grabbing their attention through their mobile devices. In terms of conducting the assessment, they should also take this opportunity by bringing tech-based assessment, rather than traditional paper-based assessment, into their classroom. It is a tech-based assessment available in their mobile devices that can be more accurate in representing the students' knowledge in the online environment.

In conjunction with the advancement of the modern online classroom response system in formative assessment, *Kahoot!* is one of a free formative assessment tools, which can be widely used in education (Ismail et al., 2019; Wang & Tahir, 2020). This platform enables the instructors to formatively assess the students' current understanding of the material as well as fostering critical thinking communication through peer-to-peer discussion through right-wrong answers (Hughes et al., 2018, p. 298). More specifically, they can use it in enhancement activity, where tasks given to students to strengthen the students' understanding of a subject matter taught in a previous class (Gani et al., 2016), in the form of the game so that the students do not even realize they are encountering an assessment (Khairil & Mokshein, 2018).

The *Kahoot!* Game-based SRS

Kahoot!, a game-based student response system (SRS), was released in September 2013 in Norway and it already had 70 million users worldwide (Wang & Tahir, 2020). It allows teachers to create game-based multiple choice quizzes, discussion questions, and surveys (Ismail et al., 2019; Plump & LaRosa, 2017). What is more, it

can insert music, images, and YouTube videos to accompany the questions and facilitate learning (Batsila & Tsihouridis, 2018).

In so doing, firstly, the teacher prepares a set of questions on the lesson and uploads it at https://getkahoot.com. Prior to join into the game, the students are requested to enter the game PIN and a nickname at https://kahoot.it. Points awarded for each question on the basis of the correctness of the responses and how fast the students respond to the questions. The top-five scorers are then displayed along with their score on the main screen at the end of the game.

METHOD

This research was conducted within the framework of a sequential explanatory mixed-method approach (Creswell, 2009; Fraenkel et al., 2012; Ivankova et al., 2006; Riazi & Candlin, 2014) in which qualitative findings will elaborate, refine, and clarify the quantitative findings (Ebadi & Rahimi, 2017, p. 6). More concretely, the author first gathered the participants' responses exposed through a distributed questionnaire. In order to achieve complementarities, the author then collected qualitative interview data from the sub-sample of participants to provide in-depth description and deeper understanding. Those multi-method approaches are believed to be the appropriate methods to support the data analysis and collection process.

This current study was implemented following the phases suggested by Martins et al. (2019). Initially, after following the registration procedure on the site https://kahoot.com/, the researcher prepared an online quiz before the lesson. The researcher, then, selected "quiz" mode and created ten questions consisted of "true or false" and multiple choices, with three incorrect alternatives and one correct answer. The researcher also defined the duration for answering each question in 20 seconds. In the day this app implemented, the researcher opened the online quiz and shared the game PIN to the students. The quiz was played, firstly, in classic mode and, then, in group mode that allowed them to discuss the best

answer among them. At the end of the quiz, there will be a podium illustrating the classification of the top-three winners.

A total of 21 participants were voluntarily involved in this study. They were all registered third-year undergraduate students of English Education Program at one of private universities in Jember, Indonesia, enrolled in the academic year of 2016 – 2017; of them 33.3% male and 66.7% female. Coincidentally, they confessed that they were proficient or experienced in using the smartphone. In this sense, they have capabilities in surfing the web and operating the many applications to notify themselves of all the contemporary technological advancement. Accordingly, they were appropriate for participating in this study, where digital game-based learning was being utilized. Further, all activities were conducted in one class in the morning (7 students) and another class in the afternoon (14 students).

An anonymous web-based questionnaire using Google form was designed as the main instrument to obtain all-necessary data, following the instructions and procedures as suggested by Manfreda & Vehovar (2008). The structure of the questionnaire was mainly adapted and modified from several relevant contemporary studies (Al-Hunaiyyan et al., 2018; Gani et al., 2016; Licorish et al., 2018; Pede, 2017; Wang, 2015). It was prepared in participants' native language, Bahasa Indonesia, to minimize the possible communication gap.

The questionnaire consisted of 2 parts. Part 1 was open-ended and designed to collect the participants' demographic data. Part 2 was closed-ended questions in the form of forced-choice Likert-type items ranging from 1 (strongly disagree) to 5 (strongly agree). This part consisted of 13 questions in total; 2-items questionnaires about mobile technology integration into the classroom, 4-items questionnaires about classroom dynamics (students' interaction, enjoyment of competition, enjoyment of playing), 2-items questionnaires about students' motivation towards learning, and 5-items questionnaire concerning perceived learning. In short, this online questionnaire measured the data concerning: (1) factual questions (e.g., gender and

age), (2) behavioral questions (e.g., mobile learning integration), and (3) attitudinal questions (e.g., attitudes, opinions, and beliefs about the in-class use of *Kahoot*!) (Dörnyei & Taguchi, 2010). Prior to administering the questionnaire, experts specializing in ELT and instructional media were involved to examine the content validity of the questionnaire. The link of the questionnaire was shared via WhatsApp group of the class created by the researcher and the students then filled in the form individually.

The second instrument, focus-group interview, delved deeper into the research topic by adopting a qualitative approach, as suggested by early studies (Burner, 2015; Licorish et al., 2018). A focus-group interview was conducted in Bahasa Indonesia with randomly selected students. It consisted of 4 open questions focused on understanding students' views for *Kahoot!* in education. By adapting the structure of questions from several scholars (Gani et al., 2016; Licorish et al., 2018; Martins et al., 2019), the 4 open questions were asked "What are the main positive or negative points you highlight with using *Kahoot!*?", "Would you like to engage in *Kahoot!*-based activity again?", "Would you like to recommend *Kahoot!* to be used more often in class?", and "Would you like to intend to use *Kahoot!* in your future teaching?". This interview was performed after the practice application and lasted 20 minutes, as recommended by Lauermann & Barbosa (2018). All data collected through interviews were then audio-recorded and transcribed (Ebadi & Rahimi, 2017; Widodo, 2014).

Quantitative data resulted from Google form were analyzed using descriptive statistics of SPSS v.20. Reliability test was also performed after the data collection, with the Cronbach's Alpha of 0.705 signaling a reliable internal consistency (Cohen et al., 2007, p. 506). Following this step, the results were interpreted by calculating the frequencies, percentages, means (M), and standard deviations (SD) for each questionnaire item. Whereas, qualitative data from focus-group interviews were analyzed using the framework adapted from previous relevant studies (Al-Awidi & Ismail, 2014; Özdener &

Demirci, 2018). The data were first converted into a written format, coded, and, thereafter, interpreted.

FINDINGS

The following sub-sections display the data resulted from the students' questionnaires including 1) the students' perceptions with respect to mobile phone integration into the classroom and 2) the in-class use of *Kahoot!* that comprises: the engagement, the motivation, and the perceived learning of the students.

Students' Perceptions of Mobile Phone Integration

Data presented in table 1 reflect the students' views toward the integration of mobile phones into the classroom. Mean, the average score, and Standard Deviation (SD) are also presented. The value of SD in table 1 is around 1. It shows that the students' responses are close to the mean.

Table 1 Students' Perceptions of mobile phone integration

No	Question(s)	SD (%)	D (%)	N (%)	A (%)	SD (%)	M	Std. D
Q3	I feel comfortable learning using smart phone.	0	0	14.3 (n=3)	33.3 (n=7)	52.4 (n=11)	4.38	0.74
Q4	Mobile technology can bring many opportunities to the learning process.	0	0	14.3 (n=3)	42.9 (n=9)	42.9 (n=9)	4.29	0.72

Note: *SD: Strongly disagree, D: Disagree, N: neutral, SA: Strongly agree, A: Agree, M: Mean, Std. D: Standard Deviation.*

Regarding students' responses on Q3, "*I feel comfortable learning using smartphone*", the results of the data analysis indicated that more than a half (52.4%) participant strongly agreed with the statement, and 33.3% of students agree with the statement. In other words, the students' agreement is 85.7% (Mean = 4.38, SD = .74). With regard to students' responses on Q4, the researcher found that the percentage of students' agreement is 85.8% while neutral 14.3% (Mean = 4.29, SD = .72).

Students' Perceptions of the Utilization of *Kahoot!*

Classroom Dynamics

The results of Q5 concerning students' interaction indicated very strong agreement (90.5%) and neutral only 9.5% (Mean = 4.33, SD = .66). While Q6 concerning the enjoyment of competition the result shows that the percentage of students' agreement is 85.7% and neutral 14.3% (Mean = 4.38, SD = .74). The result of Q7 shows that the percentage of students' agreement is also very high 90.5% and neutral 9.5% (Mean = 4.38, SD = .67). Regarding students' responses to Q8, the percentage of students who strongly agree is 61.9% and agree is 38.1% (Mean = 4.62, SD = .50). To sum up, those responses are going to be illustrated in the following table.

Table 2 Students' Views on the Aspect of Classroom Dynamics

No.	Question(s)	SD (%)	D (%)	N (%)	A (%)	SA (%)	M	Std. D
Q5	I communicate with other players while playing.	0	0	9.5 (n=2)	47.6 (n=10)	42.9 (n=9)	4.33	0.66
Q6	It was fun to compete against other players.	0	0	14.3 (n=3)	33.3 (n=7)	52.4 (n=11)	4.38	0.74
Q7	I was passionately engaged while playing.	0	0	9.5 (n=2)	42.9 (n=9)	47.6 (n=10)	4.38	0.67
Q8	This app made the class more interactive and fun.	0	0		38.1 (n=8)	61.9 (n=13)	4.62	0.50

Note: *SD: Strongly disagree, D: Disagree, N: neutral, SA: Strongly agree, A: Agree, M: Mean, Std. D: Standard Deviation.*

Students' Motivation

According to the analysis on Q9, the majority of the students admitted *Kahoot!* sessions increased their motivation to learn. To be specific, nearly two-third participants (61.9%) responded that *Kahoot!* is a motivating tool for learning, while the disagreement is only 4.8%, and neutral is 33.3% (Mean = 3.67, SD = .73). Regarding Q10, the percentage of students' agreement is 57.1% and neutral is 42.9% (Mean = 3.76, SD = .77). In detail, the students' responses to Q9 & Q10 are presented in table 3.

Table 3 Results on the Aspect of Motivation

No.	Question(s)	SD (%)	D (%)	N (%)	A (%)	SA (%)	M	Std. D
Q9	*Playing Kahoot! made me more motivated about the subject.*	0	4.8 (n=1)	33.3 (n=7)	52.4 (n=11)	9.5 (n=2)	3.67	0.73
Q10	*I would pay more attention to the materials if the teacher taught like this all the time.*	0	0	42.9 (n=9)	38.1 (n=8)	19 (n=4)	3.76	0.77

Note: *SD: Strongly disagree, D: Disagree, N: neutral, SA: Strongly agree, A: Agree, M: Mean, Std. D: Standard Deviation.*

Perceived Learning

In respect to the students' perceived learning, in Q11, the majority of the students (71.4%) admitted that they learned something from playing the quiz on *Kahoot!* (Mean = 3.67, SD = .58). Furthermore, as regards the ability of *Kahoot!* in facilitating the students' learning, Q12, it is interesting to find that 66.7% of the students reached an agreement, while the disagreement is only 4.8%, and neutral is 28.6% (Mean = 3.71, SD = .64). Regarding students' responses on Q13, a bigger percentage of 71.4% admitted that *Kahoot!* sessions made them positively perceive the course, while the tiny proportion for students' disagreement is only 4.8%, and the students felt neutral is 23.8% (Mean = 3.90, SD = .77). Concerning the impacts of *Kahoot!* on the students' learning experience, Q14, the majority of students (71.5%) agreed, a tiny minority (4.8%) decided "disagree", and 23.8% students felt neutral (Mean = 3.71, SD = .64). The results of the students' recommendation to use *Kahoot!* in a higher education setting, Q15, more than a half (57.1%) students recommended it to be integrated in the HE setting, while the result of analysis also displays a tiny proportion (4.8%) for disagreement, and 38.1% students felt neutral. The data resulted from students' responses on Q11 – Q15 are displayed in table 4 below.

Table 4 Students' Responses on Perceived Learning

No.	Question(s)	SD (%)	D (%)	N (%)	A (%)	SA (%)	M	Std. D
Q11	I learned something from playing the game.	0	4.8 (n=1)	23.8 (n=5)	71.4 (n=15)	0	3.67	0.58
Q12	*Kahoot!* facilitates my learning on the subjects.	0	4.8 (n=1)	28.6 (n=6)	61.9 (n=13)	4.8 (n=1)	3.71	0.64
Q13	*Kahoot!* made me positively perceive the course.	0	4.8 (n=1)	23.8 (n=5)	52.4 (n=11)	19 (n=4)	3.90	0.77
Q14	Using *Kahoot*! in the classroom impacts students' learning experience.	0	4.8 (n=1)	23.8 (n=5)	66.7 (n=14)	4.8 (n=1)	3.71	0.64
Q15	*Kahoot!* should be used in higher education.	0	4.8 (n=1)	38.1 (n=8)	47.6 (n=10)	9.5 (n=2)	4.62	0.50

Note: *SD: Strongly disagree, D: Disagree, N: neutral, SA: Strongly agree, A: Agree, M: Mean, Std. D: Standard Deviation.*

Findings from the Students Interview

For cross-checking the students' perceptions toward *Kahoot!*, the focus-group interview were performed with 7 students (3 males, 4 females). Findings from the analysis revealed 3 major themes with regard to the in-class use of *Kahoot!* application in EFL setting: (1) the strengths and weaknesses of utilizing *Kahoot!*, (2) the students' engagement, and (3) the continuation of its usage.

When the participants were asked to describe the strengths of *Kahoot!* Implementation in learning, they mentioned that it is attractive, fun, entertaining, and can boost their concentration. In addition, it also increase the students' engagement.

> *'[I feel] very excited about playing with Kahoot!. It's very attractive, fun, and entertaining'. (Student 4, Female)*
>
> *'For me, Kahoot can increase my concentration since I have to focus my attention on each question [displayed on the screen]'. (Student 2, Male)*
>
> *'To my mind, it is very positive in terms of the students' engagement. Everyone enjoys the game and gets involved with the activity during the session'. (Student 7, Male).*

From the interview, internet connection was found to be the main contributing factor to the lack of *Kahoot!* implementation. As one of the participants claimed:

'I think it's good, but my internet connection is so poor. [That's why] it's very difficult for me to win this game'. (Student 2, Male).

In terms of the students' willingness to join *Kahoot!*-based activity in the future time, the interview responses indicated their considerable enthusiasm for playing *Kahoot!* again.

'…I can't wait to play Kahoot! [again]. Next, I'll be the best'. (Student 3, Female).

'Yeah, of course. I'm waiting impatiently for playing Kahoot!. …I'm very excited to be Kahooter of day'. (Student 6, Female)

For the continuation of *Kahoot!* usage, most of the students reported that they were very keen to use *Kahoot!* for their teaching in the future.

'Definitely! I intend to use it [means Kahoot!] in my future teaching. I believe that it's a fascinating tool for the teaching-learning processes. (Student 5, Female).

'…Why not? It's very easy to use. …I'm sure my students will love it. …' (Student 7, Male). …

DISCUSSION

The result of data analysis in the previous session revealed that the participants generally provided favorable responses towards the in-class use of *Kahoot!*.

Table 2 revealed that the participants generally indicated positive responses to the statement in Q3 and Q4. For Q3, it recorded a total mean of 4.38 and .74 for SD. This finding indicates that learning with a smartphone is very enjoyable. This finding aligns with the prior study, which claims that the students felt the excitement, joy, happiness, and valuable when they learned with mobile devices (Martin & Ertzberger, 2013). Similarly, Chen's (2016) study in Taiwan indicated that the participants mostly felt comfortable using a mobile phone for EFL learning. The result of a current study by Esteves et al. (2017) also supports this finding that the participants feel so comfortable using electronic gadgets.

Q4 indicated participants' strong agreement (85.8%) that they have positive perceptions of mobile devices integration into the teaching-learning process. This finding corroborates the study of Hsu (2013) indicating that M-learning has proved to offer many benefits and provide a myriad of opportunities for EFL learning. However, users' experience, IT infrastructure, and management issues including institutional policies may potentially become influential factors on the success of mobile devices adoption in the classroom (Alsswey & Al-Samarraie, 2019).

The results of the fifth statement demonstrated that participants' interaction with both student-student and student-teacher significantly increased. From the analysis of Q5, it can be highlighted that incorporating *Kahoot!* in the classroom can promote an interactive environment among the teacher and the students. In educational context, the teacher-student interactions have been acknowledged as a crucial factor for the students to meet the demands of cognitive and affective learning outcomes in school (Cadima et al., 2010; Pennings et al., 2018). Recent research has also recognized that such interpersonal connectedness can positively affect the students' L2 motivation (Henry & Thorsen, 2018).

Concerning the enjoyment of competition (Q6), the participants' responses also indicated strong agreement. A considerable percentage (85.7%) agree that they loved competitive elements provided by *Kahoot!*. According to Martins et al. (2019), the existence of competitive elements in *Kahoot*! can be a powerful stimulus for the students to actively participate in this game-like quizzes so that it can be highly influential in the development of meaningful learning. In addition, other previous studies by Hanus & Fox (2015) and Licorish et al. (2018) confirmed that competition was frequently used as a powerful method to generate students' motivation. However, Orosz et al. (2013) has reminded us to be fully aware of the detrimental effects that may evoke in the classroom such as diminishing the students' social-emotional skills to collaborate with their classmates and committing academic cheating.

The students' responses to Q7 signal a very high agreement (90.5%). This confirmed that *Kahoot!* has a significant contribution in creating a fun learning experience and reinforce the students' engagement in the classroom, rather than just the learning experience from the traditional lecture-style teaching method. With this engagement, they will have an intense curiosity to learn during the *Kahoot!* session. Students also expressed a very favorable attitude towards the in-class use of *Kahoot!* (Q8). Most of them agreed that learning with *Kahoot!* is fully interactive, and it is an excellent instructional media as they have more fun playing with it. This implies that the employment of *Kahoot!* can bring a fresh learning environment and create an interactive teaching method.

Analysis of Q9 indicated that the students conceded *Kahoot!* as an auspicious tool in increasing the students' motivation. In the context of L2 learning, the greater academic motivation the students have, the greater engagement during lessons they will demonstrate that is closely associated with their academic achievement (Henry & Thorsen, 2018; Lauermann & Barbosa, 2018; Rajab et al., 2012). For this reason, it is considered essential to be integrated into the classroom.

In the meantime, students' responses on Q10 indicated that they (57.1%) adequately devote extra attention when *Kahoot!* is employed in the classroom. In this way, this platform can increase the level of the students' attention during the *Kahoot!* session. Thus, the researcher believes that *Kahoot*! can assist the students to stay focus in class. The large sample of the students (71.4%) gave strong indications that they learned something from playing *Kahoot!* (Q11). Students' responses to Q12 revealed an adequate percentage (66.7%), indicating that *Kahoot!* in class promotes their learning on the subjects, and it positively affects the learners' academic performance as well.

Students' responses to Q13 indicated that most of them (71.4%) perceived *Kahoot!* in positive manners, they are eager to engaging with *Kahoot!* activity in class. Several studies support this finding. The results of action research by Guardia et al. (2019) in one of the

universities in Barcelona, Spain, also indicate that the participants generally have positive values concerning the use of *Kahoot!* in class. A research by Plump & LaRosa (2017) also reports the identical claim that there was a high-level acceptance (88.7%) on *Kahoot!* among the research participants.

In terms of the impacts of *Kahoot!* on the students' learning experience (Q14), the large sample of the students (71.5%) perceived this tool facilitated the students' learning experience. A study by Licorish et al. (2018) conducted in New Zealand setting also resulted in the perceptions that the participants described this tool has a positive influence on their learning experience. This platform could improve learning experiences for students in HE context, particularly in engineering courses (Esteves et al., 2017).

The participants conceded that they recommended *Kahoot!* to be used at university level (Q15). This recommendation confirms Guardia et al.'s (2019) statement that this platform granted them to learn differently and they believed that it was crucially important to integrate this media at the college level as an impressive complement to their training.

The result of interviews suggested that the students mostly express favorable attitudes towards the integration of *Kahoot!* into classroom practices. They mostly admit that they feel highly enthusiastic joining the class with *Kahoot!* session. They strongly agree that *Kahoot*! can create a positive learning atmosphere in the light of its ability to create an attractive, fun, and entertaining classroom. In addition, they concede that this platform promotes them to improve their focus and devote more attention to the materials. The aspects of competitiveness among the students and the promotion of their engagement have become the strengths of this tool. However, several participants are struggling to achieve their perfect score in the game in light of the poor internet connection. To tackle this issue, the teachers or instructors have to make sure that strong internet access and appropriate devices are available before and during the session (Gani et al., 2016; Ismail et al., 2019). Furthermore, the participants

confess that they only devote their attention to player ranks displayed on the podium instead of reading the questions on the screen. This supports evidence in the documented scholarly articles that students more focused on the competition rather than learning (Licorish et al., 2018).

In respect of the students' willingness to engage in *Kahoot!*-based activity, they confess that they appear to be impatient for joining with another *Kahoot!* session. In other words, they convey an immense enthusiasm to join *Kahoot!*-based activity in the future time. Bawa (2018) stated that the participants were engaged by the use of Kahoot in the classroom. This engagement will significantly contribute to the students' learning process as it can arouse their interest in understanding the content of the materials (Bawa, 2018; Lauermann & Barbosa, 2018). In terms of the continuation of *Kahoot!* usage, the students recommend this tool to be used more frequently in class. This coincides with Esteves et al.'s (2017) study that recommends this platform to be inserted more often into classroom instructions.

This current study has several pedagogical implications. It conclusively proved that this DGBL platform was hugely successful in summoning up the learners' enthusiasm, motivation, and engagement, compared to traditional paper-based assessment. Once they have those affective variables, they will easily build up their self-confidence and self-esteem levels in EFL learning. What is more, as for practical implication, this web 2.0 platform could provide immediate access to each student's answers. Hence, the teachers could have a clear projection of students' problems and misunderstandings. By having this clear picture, the teachers would be able to provide relevant constructive direct feedback to their students particularly for those with wrong answers so that they would be more aware and attentive to the limitations of their English competences.

CONCLUSION

As noted at the outset of this study, it examined the undergraduate students' attitude towards the in-class use of *Kahoot*! in EFL context. Following the results of data analysis adopted from several scholars (Al-Awidi & Ismail, 2014; Özdener & Demirci, 2018) as the analytical framework, the students strongly indicate the signal of enjoyment, playfulness, and highly engaged classroom. Moreover, they demonstrate an incredible feeling with respect to the development of their attention level during *Kahoot!*-mediated teaching session. In conclusion, overwhelmingly, participants are welcoming of this learning application; in other words, they have a high level of perception towards *Kahoot!* insertion in the classroom. When they view this tool favorably, the chances of successful learning increase. Thus, it is highly recommended to reuse this DGBL platform in other classroom settings.

However, this present research has some limitations that should be considered as the raised issues for future research. First, this research only covers *Kahoot*! ability to appraise the students' interaction, enjoyment of competition, motivation, level of concentration, as well as their academic learning experience. Therefore, it is highly recommended for future studies to replicate this study investigating its ability to reinforce the materials of the previous meetings and assessing their previous knowledge about the subject. Second, this study only involved the undergraduate students of English Education Program as the research participants. Therefore, the research findings cannot be generalized to other departments and faculties. Further research investigating users-behavior from the viewpoints of undergraduate students in other departments will also provide meaningful insights. Third, this study focused primarily on investigating users-behavior towards the integration of *Kahoot!* into the classroom from the EFL students' perspectives. It did not include investigating the users' perceptions from the EFL instructors' perspectives. Hence, examining *Kahoot!* from this angle is crucially

essential to get more in-depth analysis concerning its values incorporating into their classroom instructions.

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