Research Article

A Game-based Assessment as A Formative Test in Academic Performance: Teachers' Perspectives on Kahoot!

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Abstract

This study explores the utilization of a game-based assessment tool, Kahoot, as a formative test in the academic context focusing on the perspectives of teachers. With the increasing integration of technology into education, Kahoot has gained popularity as an interactive and engaging platform for assessing student learning. The research investigates how teachers perceived Kahoot as a formative assessment tool and its impact on their teaching practices. The qualitative approach was used in this study. Moreover, purposive sampling was administered to determine the subjects. The data in this study was collected through questionnaire and interviews with five lecturers of the Faculty of Education and Teacher Training of IAIN Lhokseumawe from different departments, namely; English Department, Arabic Department, and Indonesian Department to gain insights into their experiences and perspectives. The findings show that teachers had a positive perspective on the utilization of kahoot as a formative test in academic performance. The results also reveal that the advantages and challenges associated with using Kahoot as a formative test and shed light on its effectiveness in promoting active learning and student engagement. A gamed-based assessment called kahoot, facilitates teachers to save their time in assessing students' comprehension through immediate feedback. Its accessibility simplifies teachers and students to do a test at every turn. Therefore, this research provides valuable insights into the practical use of game-based assessments in the academic setting and the implications for pedagogical approaches.

Keyword

Formative test; gamed-based assessment; gamification; kahoot; digital technology

Introduction

The development of technology has brought major changes in education. Its existence in education lies in the ability to improve accessibility, enrich students' learning experiences, support the students' skills development which is relevant to the future, and increase teachers' creativity in preparing interactive teaching and learning processes. The use of technology, such as learning software, simulations, and educational games helps students engage actively and understand difficult concepts in a more enjoyable way. In addition, the use of technology in education covers many aspects, from traditional teaching enhanced by digital tools to fully online learning models. As a result, it has already changed the way we learn, teach, and assess. It also encourages the teachers to create creative teaching media and assessment models to gain the learning objectives. Godwin (2015) states that doing general assessments through technology for some teachers can be challenging. Teachers as the main evaluator in classroom activities must arrange a sequence of efforts to encounter the obstacles.

Assessment is generally categorized as one of the most substantial components of the educational process. It measures the progress and problems undergone by students during performances in the class. One of the assessment models in teaching and learning is a formative test. A formative test is a kind of assessment that is carried out during the learning process. It is intended to give teachers and students ongoing feedback and support about their learning progress (Bicen & Kocakoyun, 2018; Licorish et al., 2017; Medina & Hurtado, 2017). Therefore, the formative test must be creatively designed to improve students' comprehension of the subject matter (Ismail & Muhammad, 2017). The more interactive the formative tests are, the more remarkable the students upgrade their proficiency levels.

A few years, traditional assessments have been the 'backbone' of education for a long time. It merely provides a structured and measurable way to evaluate students' academic performance, namely; standardized tests of multiple choice, essays and written assignments, projects, presentations, oral tests, and homework assignments. However, educators today often explore a combination of traditional and alternative assessment methods to provide a more comprehensive view of a student's abilities and to accommodate diverse learning styles. Digital technology such as gamification is used in teaching and learning assessment in multidisciplinary. The use of game-based assessment not only improves efficiency but also provides a better possibility to understand the needs and progress of students. It also enables more flexible activities and a result-oriented assessment process.

One of the game-based assessments used in teaching and learning is Kahoot. By using Kahoot in formative tests, teachers can create learning experiences that are more dynamic, interactive, and responsive to the students' necessity. It can be an interactive way to help the students learn and reinforce their comprehensive skills. In line with (Wang & Lieberoth, 2016) research, Kahoot is regarded as an interactive game that can be used to examine students' knowledge. Moreover, a Platform for game-based learning called Kahoot can be easily designed, shared, and participated by teachers and students on any topics. It is frequently utilized in learning environments as media to

enhance students' understanding and assess the learning development process. As it is implemented in the academic class, students experience a great deal of joy and excitement (Tenau, et.al, 2019; Cutri et al., 2016). Finally, it brings positive impact on the continuity of teaching and learning activities to obtain its outcome.

To play with Kahoot, players must use their computers, smartphones, or tablets to connect to the game and respond in real-time to multiple-choice questions. Learning becomes more dynamic and joyful with the lively multimedia, such as graphics and music, as well as the competitive and captivating style. Using those kinds of digital learning tools in instructional activities promotes teachers' opportunity to upgrade students' achievement through authentic context (Hamedi, et.al, 2022). As a popular assessment platform, Kahoot provides some basic procedures that can be played by teachers and students.

The utilization of Kahoot has been a common issue in multidisciplinary teaching. The practicality of Kahoot not only fosters students' motivation, it also enables to monitors the records of students' learning advancement. Numerous researchers have investigated to the implementation of Kahoot as a formative assessment. The first research was carried out by Ismail, et al (2017). Their research tried to investigate the use of Kahoot as promising tool for formative assessment in medical education. The result surprisingly shows that Kahoot is not a suitable platform designed for complex studies, such as in medical education. Meanwhile, Kahoot platforms can build students' motivation and positive behaviour during the teaching and learning process. Another consequential research conducted by Nadeem & Falig (2020) on the use of Kahoot as formative assessment to promote students' self-regulated learning skill. The result of the research shows that Kahoot quizzes (KQ_s) enhance students' self-regulatory skill in three elements, namely; effective feedback, classroom environment, and development of students' meta-cognitive skills. Then, (Premana, et.al, 2023) conducted their research on EFL learning gamification based on students' perception. The result shows that students had strong positive responses to quizzes in the classroom. In addition, some other research is mostly concerned with the usage of Kahoot as a formative assessment in the pandemic era (Apriani, 2021), in foreign language learning to Greek and L2 students (Kapsalis, et.al, 2020), and in vocabulary knowledge and burnout level (Hamedi, et.al, 2022).

Even though some main relevant literature emphasized the effectiveness of Kahoot as a formative assessment tool, investigating Kahoot as a game-based assessment in formative tests regarding to the teachers' perception has not been conducted yet. Considering this phenomenon, the researcher addresses some research questions in this study, as follows; how are teachers' perceptions toward game-based assessment as a formative test in learning? What's the benefit of Kahoot for the teachers in assessing students' learning progress? Finally, considering the research questions, the purposes of this research are as follows;

1. To find out teachers' perceptions in multidisciplinary on Kahoot as a formative assessment
2. To discover the benefits of Kahoot for the teacher

Method

This study used a qualitative approach through questionnaires and interviews. The questionnaire was used to find out teachers' perceptions of Kahoot as a formative assessment. Likert scale with four

categories was discovered to measure teachers' perceptions of Kahoot, namely strongly disagree (DA), Disagree (D), agree (A), and strongly agree (SA). Then, interviews were used to get additional information about the advantages of Kahoot for teachers. In this case, the researcher used unstructured interview to get the data. Moreover, the participants of this study were carried out through purposive sampling. Cohen (2007) stated that purposive sampling is one of the sampling techniques that take the sample based on certain considerations or characteristics. So, the participants of this study were selected according to some criteria, as follows;

1. The expertise of the participant, which means that participants have the competence and knowledge related to the aspects of constructing formative assessment through Kahoot
2. The participants have experience of designing Kahoot as a formative assessment and can provide information objectively
3. The researcher selected five lecturers of the faculty of education and teacher training IAIN Lhokseumawe as a participant in the age range 30-40 years as representative. The participants of that age are considered available for discussion. Those lectures are from different department; 2 lecturers form English department, 2 lecturers form Arabic department, 1 lecturer from Indonesian Department.

Furthermore, techniques of data analysis were done through some steps, including data reduction, data display, and conclusion drawing. In data reduction, the researcher initially collects, transforms, simplifies, and classifies the raw data from questionnaires and interviews. While in data display, the researcher presents and illustrates the data findings through tables, images, and charts. Last, conclusion drawing. in this part, the research makes the brief conclusion of the data which corresponds with the research question and purposes of this study.

Results and Discussion

This research finding presents the responses to a set of statements related to teachers' perceptions of Kahoot in the aspects of usage and experience, effectiveness, engagement, appropriateness, and challenges in a learning environment. The responses are categorized into four levels: Strongly Disagree (SD), Disagree (D), Agree (A), and Strongly Agree (SA). Here is an analysis of the data:

Table 1. Statements in the aspect of usage and experience

NO	Statements	Teachers' perception				
		SD	D	A	SA	
1	I Have ever used Kahoot for formative test in my teaching and learning	0%	0%	100%	0%	
2	I often use kahoot for formative testing	0%	0%	100%	0%	

All respondents in this sample agree that they have used Kahoot for formative tests in their teaching and learning at least once. On the other hand, none of them strongly disagree or disagree with this statement. The data indicates that all respondents in this sample have used Kahoot for formative testing and frequently use it in their teaching and learning experiences. This indicates a high level of usage and positive perception of Kahoot for formative testing among these teachers. Bennett as cited in

(Sofyana, et.al., 2020) argued that the integration of technology in evaluation is ineluctable. Using Kahoot as a meaningful tool in assessing students' understanding and achievement make students more enthusiastic compared to paper-based test.

Table 2. Statements in the aspect of perception and effectiveness

NO	Statements	Teachers' perception				
		SD	D	A	SA	
1	Kahoot effectively engages students with learning process	0%	0%	60%	40%	
2	Kahoot helps me assess and improve students' understanding of the concepts/subject matter	0%	0%	80%	20%	
3	Kahoot motivates Learners to actively participate in the learning process	0%	0%	80%	20%	
4	Kahoot provides valuable insights into students' proficiency	0%	20%	80%	0%	
5	I feel Kahoot helps me detect students' difficulties and offer provide solutions to problems in learning	0%	0%	100%	0%	
6	I believe that Kahoot is effective in measuring students' understanding of learning	0%	20%	80%	0%	

The data above presents that teachers generally portray Kahoot in various aspects and functions. Implementing Kahoot as a formative test intensifies engagement, assessment, motivation, reflection and valuable insights into students' proficiency. The majority of teachers find Kahoot as an effective tool in these areas. The effective and critical feedback and learning benefits produced by Kahoot agreed with the previous relevant studies (Wang et.al., 2015 & Wang & Lieberoth, 2016) who preserved that using Kahoot significantly improves students' learning experience to achieve learning goals. In addition, the effectuality of Kahoot in formative assessment create fun and meaningful learning atmosphere, attracts students' attention and involvement, and has good potential to evaluate students' learning outcomes (Licorish, et al., 2018); (Omar, 2017). Moreover, according to Apriani (2021) on her research finding, using Kahoot as game-based assessment tool for formative assessment enhance students' strong motivation in acquiring the knowledge since Kahoot embedded with interesting features or multimedia. Motivation plays an important role in successful teaching and learning process (Hapsari, 2013) and promotes preferable attitudes in pedagogy (Alharthi, 2020).

On the other hand, a small percentage, 20% from the data stand for objection toward the effectiveness of Kahoot used in formative tests, especially in measuring students' understanding. This highlights the importance of considering different perspectives and contexts when using this Kahoot such educational tools. Statement 5 received unanimous agreement, indicating that teachers believe Kahoot is valuable in identifying and addressing students' difficulties in learning. It is in line with the research finding revealed by (Mahbubah & Anam, 2022), gamification in the classroom has had a worthwhile impact on students' learning process as a result of the educational-purposed game. While playing the game, they can study and comprehend the materials. Finally, teachers consider Kahoot to be an effective tool

in measuring students' understanding. They feel that it can make learning more interactive and enjoyable and making students more enthusiastic to participate in formative tests.

Table 3. Statements in the aspect of strategies and engagement

NO	Statements	Teachers' perception				
		SD	D	A	SA	
1	I find that creating Kahoot quizzes for formative tests in my subject is straightforward and efficient	0%	0%	100%	0%	
2	Using Kahoot as a formative testing tool has improved my students' engagement with the curriculum	0%	0%	100%	0%	
3	Kahoot help me identify areas where my students need additional support in their learning	0%	0%	100%	0%	
4	I noticed a positive change in students' participation and interaction since I started using Kahoot	0%	0%	80%	20%	

The table indicates that the teachers find Kahoot as an interactive tool for creating quizzes, enhancing students' engagement with learning objectives, and assessing students' learning needs. Artati (2021) in her research finding states that utilization of Kahoot brings positive impact to obtain learning outcomes and creates students' positive attitude towards learning. Moreover, the data in this table suggests that the teachers have a highly positive perception of Kahoot as a tool for improving student involvement and identifying areas for additional support to the subject matters. Its prompt scoring system sustains the teachers to assess students' theoretical and practical understanding of a subject and reflect on their academic work (Nadeem & Faliq: 2020). Finally, the majority of teachers find it easy to use, and most believe that Kahoot has had a positive impact on student participation and interaction. Kahoot encourages active engagement and empowers students to take control of their learning by allowing them to compete individually or in groups. Teachers feel that Kahoot can be used as an additional tool in a variety of subjects and levels of education, but its effectiveness may vary depending on the purpose of learning. Kahoot as interactive platform can be used for a variety of purposes, including: Introduce a new concept or topic, reinforce knowledge, encourage reflection and increase self-assessment, participation and collaboration (Cutri, 2016).

Table 4. Statements in aspect of appropriateness and alignment

NO	Statements	Teachers' perception				
		SD	D	A	SA	
1	I believe that using kahoot is appropriate for formative test in my subject	0%	0%	100%	0%	
2	I think Kahoot is perfectly aligned with the learning	0%	0%	100%	0%	

	objectives and curriculum in my subject.	

The data in this table shows that the teachers have a unanimous and positive perception of Kahoot's appropriateness and alignment with formative testing and the curriculum in their subject. They strongly agree that Kahoot is suitable and aligned with their teaching and assessment needs. This implies that Kahoot is seen as a highly compatible tool for supporting their educational objectives and formative testing practices. (Zhao, 2019) found that using gamification helps students concentrate and reduce students' anxiety during the test. In addition, (Verdiyanti, 2019) states that using Kahoot also regenerate quality of teaching and learning experience. It is supported by (Mdlalose, et.al., 2021) on their research indicated that Kahoot plays a substantial role in students' academic performance and help them to acquire the assigned learning objectives which is compatible with curriculum. As a result, considering instructional materials through kahoot assists teachers and students in formative assessment.

Table 5. Statements in aspect of challenges and obstacles

NO	Statements	Teachers' perception	
1	Please identify the obstacles or challenges you have encountered when using kahoot for English formative test! (you may choose more than one) a. Technical issues (e.g., internet connectivity, device compatibility) b. Lack of access to technology or devices for all students c. Difficulty in creating effective kahoot quizzes d. Students' engagement of participation issues e. Time constraints in preparing and conducting Kahoot formative test f. Lack of training or support for using Kahoot g. Difficulty in aligning Kahoot quizzes with curriculum or learning objectives h. Other (please specify):	a. Technical issues (100%) b. lack of access to technology or devices for all students (20%) c. Time constraints in Preparing and conducting Kahoot as a formative test (80%)	

The Table above shows that all teachers encounter quite similar obstacles in using Kahoot in academic performance. Technical problems, such as a lack of stable internet access and incompatibility of devices became a primary case in assessing students' progress development through this platform. Teacher connectivity problems can also affect students' participation in Kahoot sessions. If teachers often lose internet connection during teaching, this can cause students disinterested and get distracted. Moreover, certain teachers encounter time constraints in preparing and conducting formative tests through Kahoot. It also can be a significant obstacle in the use of this game-based assessment in education. According to Ari as cited in Apriani (2021), there is numerous weaknesses in using Kahoot in the class, including the restricted time allocated by teachers to design kahoot. The abundance of teachers' activities and inconsiderable support devices keep teachers away from providing interactive assessment tools to capture students' excitement.

The benefits of Kahoot for teachers

This study provides the result of the interviews with five lecturers of the faculty of education and teacher training of IAIN Lhokseumawe. All the interviewees stand for similar perspectives about the benefits of Kahoot. They showed that the utilization of game-based assessment (Kahoot) as a formative test leads to a number of benefits that can be obtained by teachers during teaching and learning experiences. Kahoot allows teachers to figure out quick and accurate student understanding measurements. With the live results displayed in the game, teachers can see to what extent students understand the materials taught. This allows them to identify students who need additional help in gaining the objective of learning. In addition, using Kahoot as a formative test tool can save teachers time. Direct results and automation of the evaluation process reduce the time spent correcting students' answers and giving feedback.

Kahoot can be used in distance learning, which is increasingly relevant in today's educational context. Teachers can organize Kahoot sessions online, enabling effective interaction and evaluation even though students and teachers are in different places. Overall, using Kahoot as a formative test provides several benefits for teachers, including improved accurate measurement, time savings, and support, and facilitates distance learning. Teachers can use these tools to enhance student learning experiences and help them get a better understanding of the materials taught.

The limitation of this study must be recognized. The main limitation in this study is the relatively small participant size. Although the researcher tried to select samples that represent a larger population, in fact, these participants may not cover all the variations that exist in the population. Therefore, the results of this study may not be generalized widely to the entire population. Basically, the teachers who utilize a game-based assessment as formative assessment in faculty of education and teacher training of IAIN Lhokseumawe were really restricted.

Conclusion

The purpose of this study was to find out teachers' perception and benefits of the utilization of kahoot as a formative testing. This study shows that teachers have a positive perception of the use of Kahoot as a formative test in academic performance. They view it as an effective tool for measuring student understanding, enhancing interactivity in learning, and monitoring students' progress to obtain learning objectives. Kahoot, an increasingly popular interactive learning platform, plays a purposeful role in the academic context. This application has already brought innovation to education by creating a more interactive and competitive learning experience. From the teacher's point of view, the use of Kahoot as a formative test has yielded positive results in improving student engagement and rapid assessment. Despite some technical challenges, Kahoot remains a valuable tool in modern learning.

The use of Kahoot in formative tests has shown a number of significant benefits. First, this platform motivates students to participate actively in learning with game elements, such as points and competitions. It can increase the level of student involvement and help them learn while having fun. In addition, Kahoot provides teachers with powerful tools to measure student understanding formatively. By looking at the results of the quiz individually, teachers can identify areas where students may be experiencing difficulties and plan appropriate improvement actions. Next, the existence of Kahoot for

formative test assists teachers to produce immediate feedback on students' performance and facilitate them to do online assessment. Hopefully, by implementing digital game technology in measuring students' achievement, the quality of internet connection can be improved by policy maker officer in IAIN Lhokseumawe. Then, to maximize its potential, policymakers can endeavour to such technical barriers to overcome and provide better training to teachers in using Kahoot as an effective formative test tool.

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