Multidisciplinary Journal of Distance Education Studies

www.mjdesjournal.com

STUDENTS' PREFERENCE FOR KAHOOT AS A TOOL FOR FORMATIVE ASSESSMENT IN SEX EDUCATION AND MARITAL GUIDANCE

Kareem, Abigail Abidemi
0000-0002-6602-8730
University of Lagos, Nigeria
aikuburuju-orola@unilag.edu.ng

Abstract

Over the years, the assessment of students' learning progress was done using the traditional method of written or oral tests, quizzes, classroom revisions among others. With the affordance of educational technologies, game-based learning like Kahoot and various other platforms has made periodic assessment of students' learning engaging and exciting. Consequently, this study investigated the preference of undergraduate students for learning games with respect to Kahoot as a tool for formative assessment in sex education and marital guidance. The study primarily employed a qualitative approach using thematic analysis. Secondarily, a descriptive survey design was used to collect and analyze quantitative data. The sample of the study consist all 76 students who registered for the course in second semester 2021/2022 academic session in the Department of Educational Foundations, University of Lagos. An online questionnaire via google forms with open-ended questions was used to elicit responses from the respondents with respect to preference and challenges they experience with the adoption of gaming as a tool for formative assessment. The students' academic performance was also measured using the end of semester grades. The demographic data of respondents was analysed using frequency counts. Research question 1 and 2 was analysed using simple percentages and cross tabulation respectively, while thematic analysis was used to analyse research question 3 and 4. The hypothesis was analysed using Mann-Whitney U test. The findings revealed that a preponderance of students (89.19%) prefer learning games as a tool for formative assessment for the reason that it makes

learning exciting and encourages group engagement in class. Non-preference for gaming by the remainder few was due to the choice for individualized assessment and technical hitches (internet). The study recommends the adoption of learning games in other courses and the improvement of internet services in institutions of higher learning by network providers to foster students' learning experience.

Keywords: Academic Performance, Formative assessment, Kahoot, Learning games, Students Preference

Date of submission: 15th, January 2025; Date of acceptance: 22nd, May 2025
Date of publication: 13th July, 2025
url: www.mjdesjournal.com
**Corresponding author*
Citation:
Kareem, A.A. (2025). Students' preference for Kahoot as a tool for formative assessment in sex education and marital guidance. *Multidisciplinary Journal of Distance Education Studies*, *2*(1)41-68.

Introduction

The goal of counselling education is to train individuals to be professionally skilled in relevant psychological principles and practices to assist clients in addressing varied life challenges. This is achieved by exposing trainees to different courses ranging from counselling theories, group dynamics, behaviour modification, abnormal psychology, psychological testing and evaluation, sex education and marital counselling guidance among others. One of the courses taught; Sex Education and Marital Guidance exposes would be counsellors to the methodology of delivering sex education at all levels of education and the provision of assistance to individuals, would be couples and couples to manage their marital challenges. In the University of Lagos, the course is 2-unit offered at the third year as EDF 322. The learning progress of students in the course like other courses offered in the department is continuously assessed by means of oral tests, quizzes, and/or other means as decided by the course lecturer and department. The course like other courses offered in the department would have a maximum score of 100 percent, of which 30 or 40 percent is continuous assessment and the remaining 60 or 70 percent is assigned to the end of the course examination (Department of Educational Foundations, 2021).

With the appointment of the first female and 13th Vice-Chancellor by the Governing Council of the University of Lagos on Friday, October 7, 2022; Professor Folasade

Tolulope Ogunsola, FAS, there was a birth of a new agenda for the University to be a FUTURE READY academic institution. This FUTURE READY agenda represents an acronym of a comprehensive and pragmatic mission to achieve the vision of the University which is to "be a top-class institution for the pursuit of excellence in knowledge through learning and research, as well as in character and service to humanity." The first "U" and "T" in the acronym represents "unlocking human potential" and "technology driven university" which is to be achieved by a multifaceted approach with emphasis on a purposeful investment in staffs and a fully digitalized campus (University of Lagos, n.d.). Consequently, several trainings were organized and still ongoing for faculty members to facilitate learning through innovative teaching experiences and the digitalization of pedagogical delivery.

On 17th and 18th April 2023, a two-day training tagged CARPE DIEM workshop for PEBLE (Partnership for Enhanced and Blended Learning) was organized for some faculty members in the University of Lagos. The PEBLE-WA (West Africa) is a follow-on project from PEBL-EA (East Africa) funded by the Australian Government's Department of Foreign Affairs and Trade, having the Association of Commonwealth Universities (ACU) as the lead partner on the project. The project had Ghana Tertiary Education Commission, Staff and Educational Development Association (SEDA), National Universities Commission (NUC), National Open University of Nigeria (NOUN), and Commonwealth of Learning (CoL) as technical Partners. The project also involved 12 partner universities in West Africa among which the University of Lagos, University of Ibadan, Kwame Nkrumah University of Science and Technology, Kumasi Technical University were partners. The aim of the training was to develop in faculties skills and enhance the practice of using technology in the designing and delivery of course content for blended and online teaching through a CARPE DIEM approach (a team /seize the moment approach to learning). With emphasis on promoting active learning among learners, demos and hands on activities were done during the workshop.

One of the tools used to engage faculty members during the training session was Kahoot!. It is one of the most commonly used game-based learning platform (Pange, Degteva & Nikiforidou, 2022). It is used to facilitate learning through games in the

classroom or distance learning, at all educational levels and in all subject areas on any device provided it is internet enabled. It uses artificial intelligence (AI) to make students' learning experience interesting with the following A.I features; AI-assisted creator to enhance the efficiency with respect to time it takes to make Kahoots, story text enhancer to make it easy to create story content, text-to-speech conversion for users to have the Kahoot questions and answers read aloud in human-like speech and other features

It's usage also extends beyond the academic environment as it is also used at homes and places of work for fun and learning. It has a significant function of promoting active learning, creativity and team work which is in sync with the CARPE DIEM approach. Players receive points based on accuracy and speed, adding a competitive element to the learning process. This structure boosts student engagement and motivation in addition to reinforcing learning via competition. It was therefore integrated in teaching Sex Education and Marital Guidance to facilitate learning among students and as a means of formative assessment.

Formative assessment is used to monitor or carry out an evaluation of students' learning progress while the lesson is being taught (Okoli, 2014). It provides informative and rewarding feedback to students which serves as a report to the extent of students' response to learning and reinforcement for successful learning respectively (Okoli, 2014). According to Ismail and Mohammad (2017), Kahoot serves as a supplementary tool for conducting formative assessments during feedback sessions. In Wang's (2015) view, the distribution chart that is displayed on the screen after students' response to each question is useful because it helps the teacher get feedback on the class's understanding of a topic, thereby providing an opportunity to clarify areas where students struggle.

Kahoot! (2021) explains how formative assessment can be conducted with students in the physical and virtual space; teachers should encourage and emphasize active participation and interaction for both virtual and physical learners, class discussions should follow answers to each question displayed. Also, the teacher can take advantage of the report section, to identify the number of students that played, the

difficult questions that need to be retaught and to get individualized report on each student's performance, so that they can be further helped with their learning. The report can be shared with significant colleagues in the school on the learning progress of the students (Kahoot!, 2021).

Students as beneficiaries of the teaching-learning process are critical stakeholders when considering an introduction and integration of novel modes of formative assessment using game-based learning; Kahoot!. Their opinions or views about matters that concerns their learning experiences should be prioritized because they are recipients of the teaching experience which reflects in their academic performance. Thus, it is necessary to investigate their preference for a mode of formative assessment that they are not used to for possible continuance or adoption.

Literature Review

Preference and Reason for Preference for Kahoot

Examining students' preference and reasons for preferring Kahoot, is very key in getting feedback for instructional purposes. Kariko and Ayuningtyas (2021) compared preference for kahoot and quiziz for formative assessment. A preponderance of students preferred quizzis for formative assessment. The respondents also preferred that the assessment should not be graded but for fostering learning activity. Even though the primary focus of formative assessment is for feedback and not for grading, it can be deduced from their study that most students prefer Kahoot for formative assessment without the assignment of grades.

Ismail and Mohammad (2017) investigated how 113 undergraduate medical students in a medical school at Malaysia perceived Kahoot as a formative assessment tool. Their study revealed that students perceive Kahoot as fun and useful for formative assessment. The only reservation the student had was that Kahoot does not help to make complex content simple. Makhasane and Olawande (2022) investigated the preference for digital game-based learning among grade R-12 students in South Africa. The researchers were interested in determining the kind and mode of game-based learning that suits the learning needs of learners. To achieve this, the study adopted a descriptive survey research design with a combination of quantitative and

deductive reasoning method. A questionnaire was used to gather data from 194 students selected from four schools comprising two primary schools and two secondary schools. The data was analysed using frequency counts and simple percentage. The findings of the study revealed that most learners love to play games especially one that allows for competition, challenge and curiosity.

In a study conducted by Plump and LaRosa (2017), 88.7% of 139 graduate and undergraduate students presented a positive view in their experience engaging with Kahoot. According to the barchart figure 4 in the study, a preponderance of respondents in their engagement with kahoot, enjoyed playing the game, claimed it is easy to use, made lectures more interactive and helps with the understanding of concepts during lectures. Pinto, Jaftha, Borg, Micallef and Chircop (2022) explored students' profiles, gaming and learning preferences, and expectations of gamification in education. They adopted a descriptive-normative research design. A questionnaire in an online format was used to gather data from the respondents. Simple random sampling technique was used to select a sample of 361 students, although 271 students completed the online survey. A significant portion of students expressed that lectures could be made more enjoyable through gamification, and many were supportive of the idea. Their findings also showed that students believed gamification could increase their engagement and competitiveness in completing tasks. Majority of the students in an international school in northern Malaysia also had a pleasurable experience with Kahoot for the reason that it encourages active participation and learning during language classes (Kaur & Nadarajan, 2020).

Challenges experienced by Students with the use of Kahoot

Despite the preference of kahoot by students, challenges experienced with its use is inevitable. In Sianturi and Hung (2023) systematic review of ten research works conducted in India, Turkey, Spain, Indonesia, the United States and the United Arab Emirates, some challenges with the use of Kahoot were found. According to their review, poor internet connection was the predominant challenge with the use of kahoot among students. This was revealed to impede the completion of quiz by the students. Limited time to attempt the questions and a deficiency in experience and skills in technology use was another challenge discovered. In addition, the review

discovered that some students were distracted. This distraction is caused by the audio effect and the feature of Kahoot application of having the questions projected on the screen and answers displayed on students' devices. Furthermore, Kahoot was also discovered to cause anxiety. Some students were anxious on seeing the scoreboard showing the top scorers and their names absent.

According to Bhuana (2022), lack of internet connection was a drawback experience for students who learn using kahoot. In addition to this, students also perceive the absence of further discussions on questions after playing kahoot, boredom as a result of frequent usage and limited time allocated to answer each questions as challenges experienced with the use of kahoot for learning (Bhuana, 2022). Undependable internet connection was also a major challenge of students with the use of Kahoot (Wang & Tahir, 2020). Other challenges experienced by students found include inadequate time to answer questions, difficulty to read questions and answers on the projected screen, the fear of not winning, inability to alter answers after submission, pressure to give answers and difficulty in meeting up after submitting wrong answers (Wang & Tahir, 2020). Reduced feedback from teachers, internet connection hitches, incompetence in technology usage and restrained access to classroom technology and other resources of the school were identified as drawbacks reported by students with the use of Kahoot (Rosdy & Yunus, 2021).

Kahoot and Academic performance

With respect to academic performance, one of the objectives of this study is to determine if there would be any difference in academic performance of students based on preference, thus students' academic performance of those who prefer and who do not were compared. There seems to be no empirical research in this specific objective, however the effect of Game -based learning has being proven to improve the academic performance of students. In a study conducted by Vargianniti and Karpouzis (2019) the effect of an adapted monopoly game called geopoly was measured on the academic performance of elementary students. To achieve this, a sample of 43 students were divided into groups; the first which is the experimental group who played geopoly but did not attend physical class, while the second group

which is the control group was attended physical class. A pre-test post-test control group design was used. A questionnaire was used to gather pre and post test data from the learners. Based on t-test statistical analysis of the post-test scores of the two groups, the academic performance of students exposed to geopoly have an increased. Thus, it was established that game improved students' academic performance.

Ndirika (2013), posits game-based learning as instrumental to improving the attitude and academic performance of students in science subjects. The author, explained the benefits of the integration of game-based learning in the teaching of science which are; it makes repetitive learning more engaging and helps raise awareness, reinforce knowledge, teach essential skills, and instill values. Games also encourage active participation, boost motivation, attention, and concentration, and immerse students in the material for more effective learning. They foster learning from mistakes, enhance tutoring and skill exploration, and promote a positive attitude toward learning. Additionally, game-based learning improves problem-solving, creativity, and critical thinking, supports cognitive processes, and caters to different learning styles, while also building valuable computer skills.

While game-based learning has been established as being preferred and effective for improving academic performance and engagement, none of the studies above explicitly examined the use of Kahoot for formative assessment, especially in a course like sex education and marital guidance. This study sought the impact of preference for Kahoot on academic performance, which previous studies did not investigate. Also, most studies reviewed were conducted outside the Nigerian context. There is a lack of research exploring how game-based learning, particularly Kahoot, is received among undergraduates in Nigerian classrooms. Hence, it is necessary that this study is undertaken to examine the preference of students for kahoot as a means for formative assessment.

Statement of the Problem

Learning for some students in the University of Lagos have been perceived as a boring exercise and a waste of time. This reflects in their reduced involvement during lectures, engagement with phones during lectures, being absent-minded during lectures and a reduced attendance for lectures to attend to other things that provides pleasure and money. This situation is worsened by a lack of innovative teaching strategies that can effectively engage students and promote meaningful learning experiences

This is a digital age characterized by an engrossment of children and youths alike with digital devices like the mobile phones. They are so preoccupied with the affordances accompanied with the use of mobile devices which sometimes affects their academics negatively. Since they are preoccupied with their mobile devices, it is therefore important that facilitators of course content or subject areas should take advantage of digital pedagogical innovations to facilitate learning in students.

Game-based learning has particularly shown potential in motivating students and improving educational results at the primary and secondary levels. Yet, its application in higher education, especially in a course like Sex Education and Marital Guidance, has not been thoroughly explored. Despite the promising advantages of game-based learning, there is a notable lack of research on its effectiveness in higher education in Nigeria, especially regarding the assessment of student learning progress (formative assessment). This study seeks to fill that gap by examining students' preferences for game-based formative assessment in Sex Education and Marital Guidance.

Research Objectives

The study purposes to:

1. Investigate the preference for game-based learning (Kahoot!) for formative assessment in sex education and marital guidance (EDF 322)
2. Determine the preference for game-based learning (Kahoot!) for formative assessment in other courses.

3. Examine reasons for preference for game-based learning (Kahoot!) for formative assessment among students.
4. Inquire the challenges students experience with the use of game-based learning (Kahoot!) for formative assessment.
5. Investigate significant difference in the academic performance of students who prefer game-based learning (Kahoot!) for formative assessment and those who do not.

Research Hypothesis

1. There is no significant difference in the academic performance of students who prefer game-based learning (Kahoot!) for formative assessment and those who do not.

Methodology

The study primarily employed a qualitative approach using thematic analysis. Secondarily, a descriptive survey design was used to collect and analyze quantitative data. Thematic analysis was used as a qualitative approach to investigate the reasons for preference in an open-ended response format, while descriptive survey research design was used as a quantitative approach to collect and analyze quantitative data.

The study population are all 74 students enrolled in the course (EDF 322; Sex Education and Marital Guidance) during the second semester of the 2021/2022 academic session. The sample for this study consisted all 74 students enrolled in the course (EDF 322; Sex Education and Marital Guidance) during the second semester of the 2021/2022 academic session. A census sampling technique was employed to select the entire population of students who registered for the course. This approach ensured that the opinions and academic performance of every student at the end of the course were included in the data collection, providing comprehensive insights into the preferences for formative assessment using Kahoot. The students comprised 59 females and 15 males, with an average age of 24.67 years.

Kahoot was introduced and used to measure students' learning towards the end of the course and to revise the course content. Ten (10) multiple-choice questions were constructed and used in the Kahoot session to gauge how well the students understood the course. Based on how they were seated, the students were sorted into eight (8) groups with 8 to 11 members in each group. Each group was free to pick its own group name, which encouraged participation and a sense of autonomy. The names of the group were: Goal getters, winners, achievers, elite, titans, pace setters, team exceptional and mind builders. To ensure that every student understood the structure and expectations of the game, the rules governing the game was projected on the screen before the Kahoot! started. The guidelines addressed things like group cooperation, scoring, and how to respond to the questions. At the end of the game, their positions in the game were revealed, their responses or answer to each question were revised and students were allowed to ask questions.

Data were collected using an online questionnaire administered via Google Forms. The questionnaire was designed to capture both demographic information and qualitative responses related to students' experiences with formative assessment using Kahoot. The demographic section included questions such as matriculation number, age, and gender to provide a profile of the participants. The core of the questionnaire consisted of open-ended questions aimed at exploring students' preferences for using Kahoot as a formative assessment tool. Participants were asked to provide reasons for their preferences or non-preference and to describe any challenges faced using this game-based learning mode. Students were able to openly express their ideas in the open-ended style, which helped to foster a better understanding of their viewpoints and experiences.

The demographic data of respondents was analysed using frequency counts and simple percentage. Research question 1 and 2 were analysed using simple percentage and crosstabs respectively to derive a descriptive analysis of the preference for game-based learning (Kahoot!) for formative assessment in EDF 322 and other courses, research question 3 and 4 were analysed using thematic analysis, while Mann-Whitney U test was used to analyse the hypothesis at 0.05 level of

significance. Mann-Whitney U test was considered appropriate because it is used to compare the academic performance (a continuous variable) of two independent groups and its robustness to violations of normality and distributional differences rather than mean differences.

Results

Figure 1: Respondent's Distribution by Gender

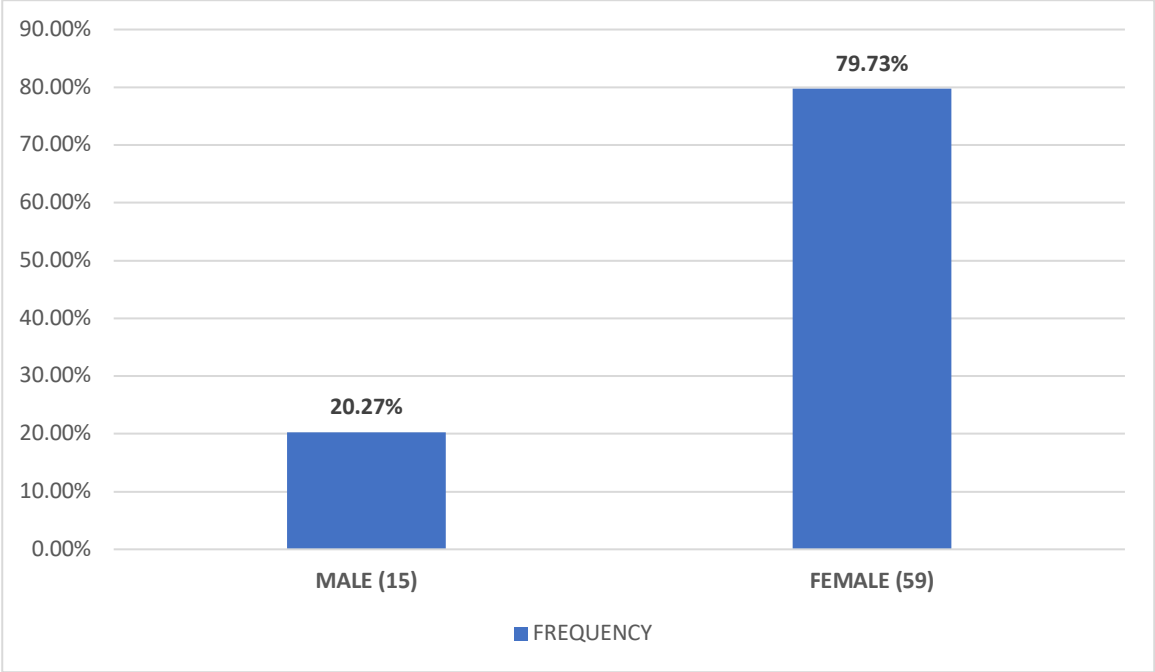

Figure 1 reveals that a preponderance of respondents were females; 59 (79.73%), while the male respondents were 15 (20.27%)

Research Question 1: Do students prefer game-based learning (Kahoot!) for formative assessment in sex education and marital guidance (EDF 322)?

Figure 2: Students' preference for game-based learning (Kahoot!) for formative assessment

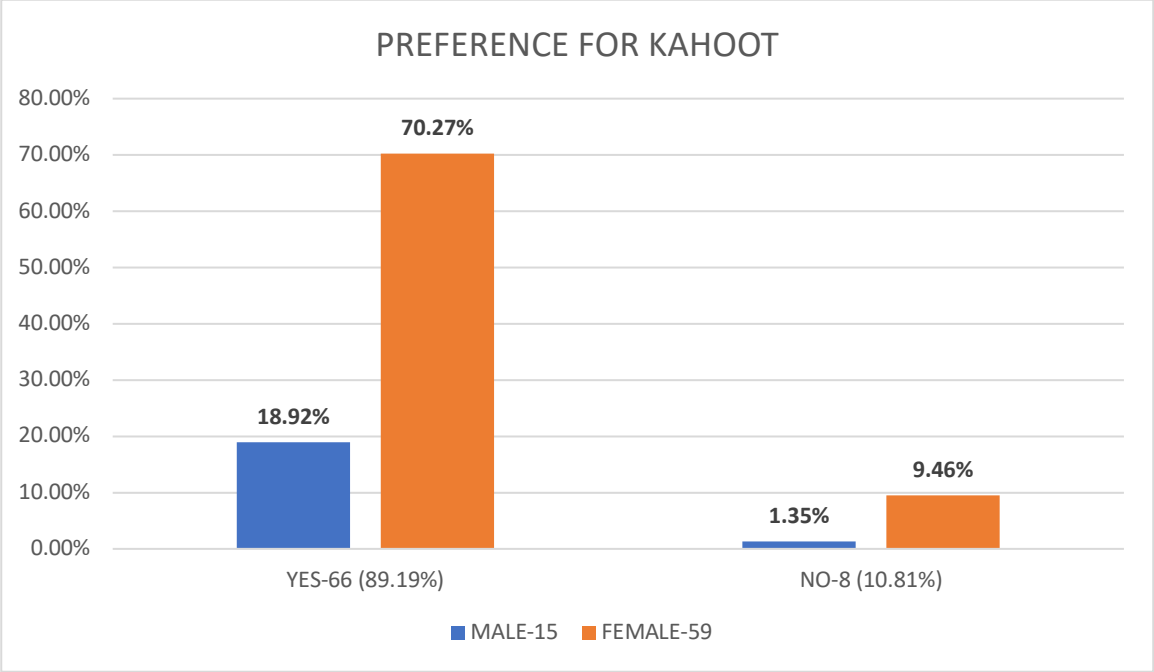

Figure 2 shows that a majority of the students 66 (89.19%), comprising 14 (18.92%) males and 52 (70.27%) females prefer game-based learning (Kahoot!) for formative assessment. 8 (10.81%) students, comprising 1 (1.35%) male and 7 (9.46%) females do not prefer game-based learning (Kahoot!) for formative assessment.

Research Question 2: Would students prefer game-based learning (Kahoot!) for formative assessment in other courses?

Figure 3: Students preference for game-based learning (Kahoot!) for formative assessment in other courses

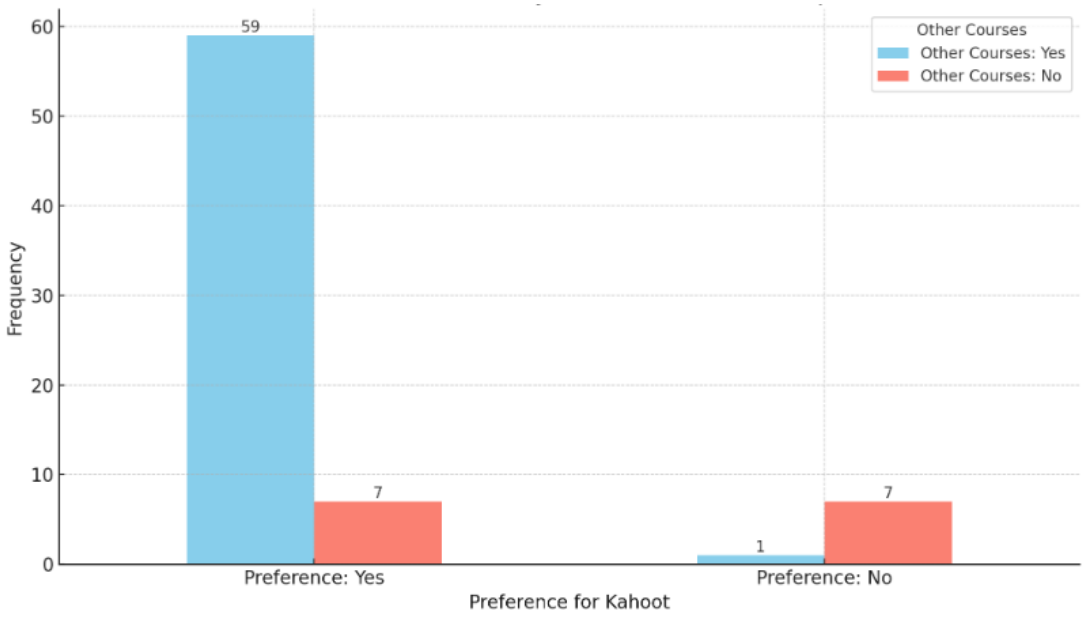

Figure 3 was an output of crosstabulation analysis to explore the relationship between students' preference for using Kahoot in EDF 322 and other courses. 59 (79.73%) students who preferred Kahoot as a formative assessment tool in EDF 322 also prefer it to be used in other courses. 7 (9.46%) students who preferred Kahoot as a formative assessment tool in EDF 322 do not prefer it to be used in other courses. Only 1 (1.35%) student who did not prefer Kahoot as a formative assessment tool in EDF 322 prefer it to be used in other courses. Another 7 (9.46%) students who did not prefer Kahoot as a formative assessment tool in EDF 322 also do not want it used for formative assessment in other courses. This distribution suggests that a strong preference for Kahoot in EDF 322 is associated with its preference in other courses, reinforcing its perceived value as a formative assessment tool among students.

Research Question 3: What are the reasons for preference or non-preference for game-based learning (Kahoot!) for formative assessment among students?

Answer:

To explore the dynamics of students' preference for formative assessment, a thematic analysis of their qualitative comments was performed. This analysis focuses on students' reflections about their preferences for or against using online gaming assessments through Kahoot, based on a set of open-ended responses. A variety of

recurring themes emerged, showcasing how students perceived this tool as both a positive learning experience and, in some cases, a source of frustration due to its technological and logistical limitations. The themes are subsequently presented with accompanying student comments.

- **Reason for Preference:**

Theme 1: Engagement and Enjoyment

A significant number of students expressed that Kahoot made learning enjoyable and exciting. One participant said, *"It's fun. Learning should be fun and exciting,"* while others noted that the interactive nature of Kahoot infused the learning process with enthusiasm. This sense of excitement was coupled with remarks about the tool's ability to reduce classroom stress. For instance, one student mentioned that it *"eases tension,"* while another remarked that it was *"fun and educative, imprinting the course in our minds and hearts."* These responses indicate that Kahoot was valued not just as a formative assessment tool but as a method that lightened the atmosphere, making it easier for students to absorb the material.

In addition to the enjoyment factor, students appreciated the way Kahoot gamified the learning process. Terms like *"engaging," "interactive,"* and *"innovating"* were frequently used. One student summarized this sentiment: *"I prefer it because it is fun, innovating, and it brings out one's energy and curiosity."*

Theme 2: Cognitive and Learning Benefits

Many students emphasized the cognitive benefits of using Kahoot, particularly in fostering quick thinking and problem-solving under pressure. A recurring theme was the importance of speed in these assessments, as one student noted, *"Because our level of speed is being tested…this is also a part of testing."* Others saw the timed nature of Kahoot as enhancing their intellectual growth. *"It's fun and can speed up intellect in an individual,"* said one student, while another mentioned, *"It helps with the skill of speed and teamwork spirit."*

In addition, some students commented on Kahoot's effectiveness in helping them retain information. One student remarked, *"It helps retention,"* and others noted how

this type of assessment helped develop critical thinking skills. The tool was described as not only an evaluation of knowledge but a challenge that involved multiple learning domains, including psychomotor skills, as one participant noted: *"I feel it includes the psychomotor domain in assessing us as students."*

Theme 3: Collaboration and Competition

The group-based format of Kahoot appeared to foster a sense of unity and collaboration among students. Some expressed that the tool encouraged teamwork, describing the group competition as motivating. One student said, *"It is healthy and it calls for unity among students,"* while another commented on how Kahoot enhanced classroom friendship by *"boosting team collection and bonding us well as course mates."*

Competition was seen as beneficial in creating an environment of healthy rivalry. One student noted how the competition aspect *"makes it easier for me to be motivated to get at least the 1st, 2nd, or 3rd place."* This emphasis on competitive spirit not only motivated students to participate actively but also provided an additional layer of engagement.

Theme 4: Technological Adaptation and Broadening Knowledge

Despite some negative feedback, a smaller group of students saw value in adapting to the technology-based format. A few commented on how Kahoot broadened their technological skills, which they saw as essential for modern learning. One student mentioned, *"It's broadened my knowledge towards technology,"* while another felt that the online gaming environment was *"a great way to engage with the material and provide a fun and interactive way to learn."*

Reason for Non-preference:

Theme 1: Speed, Fairness, and Network Challenges

Despite the overwhelming positivity, few students raised concerns about the fairness of the assessment, particularly the emphasis on speed. Some noted that Kahoot's

scoring system seemed to reward faster responses rather than the accuracy of the answers. One student explained, *"The scoring is only based on speed, even if you pick the correct answer you don't get your full score."* Another participant agreed with this concern, stating, *"It's not really efficient…scoring is only based on speed."*

In addition to concerns about fairness, network issues were highlighted as significant challenges to the assessment's effectiveness. One student pointed out, *"I wouldn't prefer online gaming assessment because of the issue of network,"* while another elaborated on how unpredictable internet access made Kahoot assessments frustrating: *"We can't predict if the network would be good or not, so online gaming assessment is a no for me."*

These concerns about technical limitations suggest that while the online gaming approach may foster engagement and learning, external factors like internet connectivity can diminish its effectiveness for some students.

Theme 2: Skepticism

A few students expressed skepticism about using Kahoot as an assessment tool. While some felt the tool was too dependent on external factors like network reliability, others believed it did not fairly assess their knowledge. One student commented, *"I do not prefer online gaming because it is conditioning,"* while another said, *"It is not a criterion for testing one's intelligence or knowledge."* These responses suggest that some students perceived Kahoot as limited in scope, more focused on speed and competition than on deeper understanding or critical thinking.

Research Question 4: What challenges do students experience with the use of game-based learning (Kahoot!) for formative assessment?

Answer:

The analysis of student responses regarding the challenges experienced with the use of Kahoot as a formative assessment tool highlights three major themes: **network issues**, **time constraints**, and **concerns about fairness and inclusivity**. These challenges, while largely centered on technological limitations, also include issues

related to the nature of the assessment itself and its broader impact on student learning experiences.

Theme 1: Network and Connectivity Problems

A dominant theme in nearly all the responses was the issue of **network reliability**. Students repeatedly pointed out that poor or unstable internet connections are a significant obstacle to using Kahoot for assessments. Phrases such as *"bad or slow network providers," "poor internet connection," "unstable network,"* and *"network palava"* appear throughout the responses, indicating the pervasive nature of this problem.

Many students felt that the unpredictability of network performance could affect their ability to complete assessments accurately and in a timely manner. One student expressed concern that *"bad network can make it uninteresting,"* while another noted, *"network issues because it's unpredictable, which can lead to a low score."*

In addition to affecting individual performance, connectivity issues were also seen as impacting group-based assessments, leading to frustration and disorganization. As one student said, *"It's a group work, and working with groups can be stressful. Blames flying here and there."* This response underscores how network problems can exacerbate interpersonal tensions in group settings.

Theme 2: Time Constraints and Pressure

Time management emerged as a significant concern for many students. Some respondents felt that Kahoot's fast-paced nature did not allow enough time for reflection and problem-solving. One student commented, *"The challenge is that there is no enough time for the online game,"* while another said, *"There's not enough time to think."* This suggests that while Kahoot emphasizes speed and quick recall, it may not cater to students who require more time to engage critically with the questions.

Time limitations combined with network challenges were seen as a double-edged sword. For instance, one student remarked, *"The network determines your fate,"*

linking poor connectivity directly to the issue of insufficient time. This reflects a broader concern that technical difficulties, rather than academic ability, may disproportionately influence performance outcomes.

Theme 3: Fairness, Inclusivity, and Assessment Validity

Another recurring theme in the responses was the question of **fairness** and **the inclusivity of the assessment method**. Several students expressed concern that Kahoot's reliance on speed and technological access might not accurately reflect their academic abilities. One student remarked, *"It can't fully measure the extent of students' knowledge and abilities. It is prone to functionality problems like network downtime and system glitches."*

Some students were worried that network issues might unfairly impact their performance, with one participant stating, *"It's not a justifiable reason to fail an assessment because of a bad mobile network."* The underlying sentiment here is that technical difficulties, rather than intellectual competence, could lead to an unfair assessment outcome.

In addition to these concerns, students pointed out that the tool could create an **uneven playing field**, especially for those without access to reliable devices or who are less familiar with gaming technology. As one student summarized: *"Some students may not have access to the necessary technology or may have limited experience with gaming, which could create an uneven playing field."*

Theme 4: External Factors: Electricity and Resources

A significant number of respondents raised concerns about external factors, particularly **electricity and the availability of resources**. As the university in the context of the responses may face inconsistent power supply, students noted that continuous assessments using Kahoot might be hampered by such infrastructural issues. One respondent emphasized, *"Electricity is also an important factor, but it is not constant,"* while another commented on the need for reliable resources, *"It might not be sustainable because of a lack of necessary equipment and electricity."* These

observations suggest that even when network issues are resolved, there are broader structural challenges that need to be addressed.

Theme 5: Mental and Emotional Strain

In addition to technological and structural concerns, some students expressed emotional reservations about the competitive nature of Kahoot. One student remarked, *"It can instill a lot of pressure and unnecessary competition among students."* Others mentioned that the tool could foster feelings of **anxiety** or **unworthiness**, with one respondent describing the potential for *"people feeling anxious and feeling they don't know anything when assessed."* This reflects the emotional strain some students may experience when using an assessment method that is perceived as overly fast-paced and competitive.

Theme 6: Visual Problems

Although, only one student mentioned that the use of Kahoot for formative assessment of students may not be beneficial for students with colour blindness, this response is very significant and should be put into consideration when improvement on the game is to be considered.

In summary, for Kahoot to be an equitable and effective tool for continuous assessment, considerations must be made to ensure reliable internet access, appropriate timing, and fair grading mechanisms that accurately reflect students' knowledge rather than their technological access or speed.

Hypothesis Testing

Hypothesis 1: There is no significant difference in the academic performance of students who prefer game-based learning (Kahoot!) for formative assessment and those who do not.

Table 1: Mann-Whitney U Test Analysis on academic performance of students who prefer game-based learning (Kahoot!) for formative assessment and those who do not.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Academic Performance is the same across categories of Preference for Kahoot	Independent-Samples Mann-Whitney U Test	.800	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

A Mann–Whitney U test was conducted to examine differences in academic performance between the group of students who prefer Kahoot for formative assessment and those who do not. This nonparametric test was chosen due to its robustness to violations of normality and its focus on distributional differences rather than mean differences. Levene's test of p=0.841 indicated equal variances between the two groups. However, there was a violation in the use of independent t-test with respect to normality of distribution of the two groups. The result from the Shapiro-Wilk test indicated that the data was normally distributed for the academic performance of students who do not prefer Kahoot (NO GROUP) with a p-value of 0.241, while it was not normally distributed for the yes group with a p-value of 0.004. Hence, the use of Non-parametric analysis using Mann-Whitney U statistic. Below is the statistical derived from the analysis:

Group 1 (YES): Mdn = 65.0 N=66

Group 2 (NO): Mdn = 66.0 N=8

Mann–Whitney U = 249.50, p = .81 (two-tailed)

Cohen's d = -0.04 (indicating a negligible effect size)

The results indicated no statistically significant difference in academic performance between the two groups, U = 249.50, p = .81. Median scores were nearly identical, and the distributions appeared similar upon inspection. The effect size was very

small (d = -0.04), suggesting practically no difference between the groups. Given the non-significant result and the negligible difference in medians, we conclude there is no meaningful difference in academic performance based on preference group.

Discussion of Findings

The findings of this study revealed that a significant number of students prefer learning games as a tool for formative assessment not only in sex education and marital guidance but also in other courses. Preference was due to the fact that they considered it as fun, facilitating learn through collaborative effort and a way of improving one's cognitive ability. Reason for non-preference by the few was due to frustrations caused by internet challenges. Although there are limited studies that have investigated the preference of students for game-based learning, the findings of this study is in line with Makhasane and Olawande (2022), who revealed that revealed that most learners love to play games especially one that allows for competition, challenge and curiosity. Although, this study was conducted among university undergraduates in Nigeria and Makhasane et. al (2022) was conducted with primary and secondary students in South-Africa, one should expect a disagreement with findings considering the geographical location of the study and the nature of the sample. But the findings were similar which may be due to the attractiveness and mesmerism of the young towards digital devices and its affordances.

Similarly, the finding of this study aligns with Pinto et. al. (2022), who found a significant portion of students supported gamification for the reason that lectures could be made enjoyable by integrating games in the teaching-learning process. Plausible reasons for similarities in findings may be due to the popular attraction of 21st century students to innovations that enhance social interaction and learning. Similar findings were also discovered with Ismail et. al (2017), Plump et al (2017) and Kaur et. al (2020). They found that Kahoot made learning fun and useful for formative assessment, interactive and fostering active participation during lectures.

However, there seems to be a disagreement in the findings of Kariko et al (2021) with this study. Students do not prefer online quizzes for graded formative assessment. The aim of formative assessment is not for assigning grades (Okoli, 2014). Students' non preference for Kahoot for formative assessment in Kariko's study was because it was graded. For formative assessment to be effective, teachers should provide informative and rewarding feedback to students (Okoli, 2014). This feedback informs students on the extent of learning, identifying learning mistakes in need of correction.

With respect to challenges experienced by students with the use of Kahoot for formative assessment, this study revealed network issues, time constraints and pressure to attempt questions, students' view as an invalid mode to measure students' knowledge, lack of access to device and unfamiliarity with gaming technology, unreliable electricity, unavailability of resources, anxiety and the inability of students with visual impairment to participate. Many of these findings are common with other studies. Sianturi et. al (2023) found poor internet, time constraint and deficiency in the use of technology. Bhuana (2022), Rosdy et al (2021) and Wang et. al (2020) also identified poor internet connection as one of the challenges experienced by students with the use of Kahoot. Thus, one can conclude that unreliable internet connection is the commonest challenge students experience with the use of Kahoot.

Other challenges found in other studies, but not in this study include distraction caused by questions and answers displayed on different screen and audio effect (Sianturi et. al, 2023), absence of further discussions after playing Kahoot, boredom from frequent usage of Kahoot (Bhuana, 2022), the fear of not winning, inability to alter answers after submission (Wang et. al, 2020). One challenge found in this study and not in other reviewed study is the concern about students with visual impairment. The blind and those with colour blindness may not be able to participate in this form of assessment. This has great implications for consideration by the inventor of for possible inclusion of feature to enhance inclusivity for the visually impaired.

The findings of this study also reveals that there is no significant difference in the academic performance of those who prefer game-based learning and those who do not. The performance of students in the two groups were above average and can be graded B based on the grading system of the University of Lagos (Educational Foundations, 2021 pp. 46). This finding is in tandem with Ndirika (2013), who sees learning as instrumental to improving the attitude and academic performance of students in science subjects. The findings of the study synced with the establishment by Vargianniti and Karpouzis (2019), that game improved students' academic performance. Attitude matters when it comes to learning. When learning is perceived as boring, it may affect the retention of knowledge taught in the classroom, but when learning is perceived as enjoyable and fun as enhanced by the integration of learning games, students learn more which results in increased academic performance

Recommendation

Based on the findings of the study, it is recommended that:

1. Course lecturers or teachers should integrate learning games into the pedagogical delivery of their course contents
2. Network providers in Nigeria should improve their services in institutions of higher learning to enhance students' learning experience
3. The University of Lagos Management should ensure that regular power supply should be provided in institutions of higher learning, especially during work/lecture period to enable teachers and students make maximum use of learning games.
4. Lecturers should employ individualized variants of learning games for students who do not prefer group-based games. In other word games should be integrated in such ways that will benefit all learners with inclusivity in mind.
5. The developers of Kahoot! should take into consideration including features that will enable the visually impaired students to benefit from its use.

Implication for Counselling

The findings of this study have implications for counselling. In providing academic guidance and counselling as a service within the school guidance program, the school counsellor could use game-based learning during remedial classes organized for students who are underperforming in some courses or subject areas to enhance learning.

Also, counsellors should offer training and consultancy services both to staffs, students and others outside the school environment. Counselling can provide trainings for teachers and parents in using this simple game-based learning to enhance students learning and academic performance.

Conclusion

The overall sentiment from the students leans towards a preference for Kahoot as a tool for formative assessment. Most students praised the tool for being fun, engaging and an innovative departure from traditional assessment methods. The competitive and collaborative nature of the game was appreciated for fostering both individual cognitive growth and group unity. However, a subset of students expressed concerns about fairness due to the speed-based scoring system and network issues, suggesting that while Kahoot enhances learning, improvements could be made to ensure inclusivity and equity in its application. Also, there are concerns which extend beyond technical difficulties to encompass broader questions about how well such an assessment tool can accurately measure students' understanding and accommodate diverse learning needs, including those with colour blindness. Without addressing these underlying challenges, the effectiveness of Kahoot as an assessment tool may be limited, and students may experience unnecessary frustration or disadvantage.

References

Bhuana, G.P. (2022). The benefits and drawbacks of Kahoot: Students' perspective. *Journal of Language Teaching and Learning, Linguistic and Literature,10*(2),2224-2232

Department of Educational Foundations (2021). *Department Handbook 2021-2023.* Lagos: Onasb Printing Press

Ismail, M. A. A., & Mohammad, J. A. M. (2017). Kahoot: A promising tool for formative assessment in medical education. *Education in Medicine Journal, 9*(2), 19-26.

Kahoot! (2021, February 11). Formative assessment with Kahoot!: How to make it fun and effective. *Kahoot! Blog*. https://kahoot.com/blog/2021/02/11/formative-assessment-kahoot/

Kariko, A. A. T., & Ayuningtyas, P. (2021, September). *Examining students' preferences of Quizizz and Kahoot's as formative assessment and competitiveness*. In Proceedings of the 2021 International Seminar on Application for Technology of Information and Communication (iSemantic) (pp. 400–404). IEEE. http://dx.doi.org/10.1109/iSemantic52711.2021.9573176

Kaur, P., & Nadarajan, R. (2020). *Language learning and teaching using Kahoot!*. International Journal of Modern Education, 2(5), 19–28. http://dx.doi.org/10.35631/IJMOE.25003

Makhasane, M. & Olawande. D. (2022). Preferences of grade R-12 learners in South Africa for digital game-based Learning. *European Conference on e-Learning*, 21 (1), 240-249. 10.34190/ecel.21.1.909.

Ndirika, M. C. (2013). Game-based learning: A panacea for better attitude and academic achievement in basic science. *Journal of Educational and Social Research, 3*(8), 91-97. https://doi.org/10.5901/jesr.2013.v3n8p91

Okoli, C.E. (2014). *Introduction to Educational and Psychological Measurement.* Behenu Press & Publishers; Lagos

Teacher's starter guide to Kahoot! (nd.) Retrieved from https://Kahoot.com/files/2021/06/StarterGuide_0621.pdf

Pange, J., Degteva, A. & Nikiforidou, Z. (2022). ICT tools in designing preschool educational activities on historical events. Technical Annals; *International Scientific Journal in Advances in Engineering (Special Issue), 1* (1), 309-316

Pinto, F. C. M., Jaftha, N., Borg, S., Micallef, M. Z., & Chircop, T. (2022). Students' learning and gaming preferences and their expectations of gamification. *MCAST Journal of Applied Research & Practice*, *6*(1), 60–78. https://doi.org/10.5604/01.3001.001

Plump, C. M., & LaRosa, J. (2017). Using Kahoot! in the classroom to create engagement and active learning: A game-based technology solution for elearning novices. *Management Teaching Review, 2,* 151-158. https://doi.org/10.1177/2379298116689783

Rosdy, S. N. A., & Yunus, M. M. (2021). A systematic review of kahoot: perceptions and challenges among english learners and teachers. *International Journal of Academic Research in Progressive Education and Development, 10*(1), 377-391.

Sianturi, A.D., & Hung, R.T. (2022). The challenges of using kahoot*!* in teaching and learning in higher education - A systematic review*.* In Proceedings of the 6th International Conference on Digital Technology in Education (ICDTE 2022) (pp72-77) https://doi.org/10.1145/3568739.3568753

University of Lagos. (n.d.). *Building a future-ready UNILAG: The Professor Ogunsola agenda* [PDF document]. Retrieved from https://unilag.edu.ng/wp-content/uploads/Building-a-Future-Ready-UNILAG-The-Professor-Ogunsola-Agenda.pdf

Vargianniti, I., & Karpouzis, K. (2019). Effects of game-based learning on academic performance and student interest**.** In K. Karpouzis (Ed.), *Games and learning alliance: 8th international conference, GALA 2019, Athens, Greece, November 27–29, 2019, proceedings* (pp. 389-401). Springer. https://doi.org/10.1007/978-3-030-34350-7_32

Wang, A. I. (2015). The wear-out effect of a game-based student response system. *Computers & Education, 82*, 217-227. https://doi.org/10.1016/j.compedu.2014.11.004

Wang, A. I., & Tahir, R. (2020). The effect of using Kahoot! for learning – A literature review. *Computers & Education,* 149, 103818. https://doi.org/10.1016/j.compedu.2020.103818