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Abstract

This study examines the impact of Kahoot, a game-based learning platform, on undergraduates' academic engagement and performance in Kwara State. Using a descriptive survey design, data were collected from 150 students through a validated questionnaire. Analysis with percentages, means, and t-tests was conducted to address research questions and hypotheses. Findings indicate that students frequently use Kahoot for teamwork development, concept learning, and immediate feedback. The platform significantly improves academic engagement, with a grand mean score of 2.75 exceeding the benchmark of 2.50. Similarly, academic performance benefits, as reflected in a grand mean score of 2.83. Gender-based analysis showed no significant differences in engagement or performance (p-values of 0.121 and 0.187 > 0.05), indicating that Kahoot's effectiveness is consistent across genders. Kahoot fosters digital inclusion, equitable participation, and self-paced learning, creating an engaging and collaborative environment. Its interactive features and immediate feedback enhance students' understanding and retention of course material. These findings align with prior studies emphasizing Kahoot's role in boosting motivation, enjoyment, and classroom dynamics while minimizing learning barriers. The study concludes that Kahoot transforms traditional learning experiences, making them more interactive and effective. Recommendations include educator training on game-based learning tools and further research into its long-term impacts in varied contexts. The findings underscore Kahoot's potential to improve academic outcomes and modernize educational practices.

Introduction

Education serves as the bridge through which societies transmit their culture, values, and accumulated knowledge, guiding the development of children and youth into active members of the community. It involves structured methods of teaching and learning in schools, distinct from informal socialization methods such as family interactions or community projects (Ogwari, 2021).

However, in today's rapidly evolving world, education is increasingly shaped by technology, which is transforming the learning landscape in profound ways.

In modern classrooms, technology is ubiquitous. In the United States, for instance, public schools now ensure access to at least one computer for every five students, spending billions annually on digital content. Efforts led by the federal government have made high-speed internet and free online teaching resources more accessible, even in remote areas. These advancements have enabled a shift in standardized testing from paper to digital formats, reflecting a broader integration of technology in education (Couch, 2023). This trend underlines the potential of technology to meet diverse student needs by personalizing education based on individual strengths, interests, and learning paces (Reich, 2020). Adaptive educational software further enhances this by analyzing students' knowledge, learning processes, and even emotional states to tailor their learning experience (McDiarmid & Zhao, 2023).

The field of educational technology, or "EdTech," exemplifies this integration. Combining hardware, software, and educational practices, EdTech facilitates innovative learning experiences. While primarily a tool for education, EdTech is also an industry driven by profit, with companies expanding their reach globally (Mirrlees & Alvi, 2019). At its core, educational technology focuses on improving learning outcomes through the effective design, development, and use of technological tools and resources. It goes beyond physical devices to include theoretical frameworks and algorithmic processes that enhance education (Morel & Spector, 2021). By fostering diverse and interactive learning environments, technology equips students with essential skills to navigate their academic and professional journeys (Huang, 2019).

The role of technology in education became even more pronounced during the COVID-19 pandemic, which necessitated a global shift to online learning. Tools like Kahoot! exemplify how game-based learning platforms can engage students, improve formative assessments, and make learning more interactive. Such platforms cater to the tech-savvy generation of today, who face unique challenges like time constraints and non-academic distractions (Reich, 2020). By merging gaming elements with educational objectives, tools like Kahoot! have shown significant promise in enhancing motivation and engagement.

Kahoot stands out as a game-based student response system designed to promote active learning and assessment. Its interactive features, such as high-quality visuals, music, and immediate

feedback, have been shown to improve students' enjoyment, focus, and academic outcomes (Benhadj, El Messaoudi & Nfissi, 2019). Moreover, its versatility in both face-to-face and virtual learning environments underscores its adaptability, making it a valuable resource during times of crisis like the COVID-19 pandemic (Sukowati & Sartono, 2020).

For teachers, keeping students engaged in large, passive classrooms has always been a challenge. Research highlights the importance of interactive learning approaches, including using tools like student response systems (SRSs), which have been in use since the 1960s. Modern advancements, such as Kahoot, have built upon these systems by incorporating gaming elements to foster active participation and improve classroom dynamics (Cameron & Bizo, 2019).

The effectiveness of game-based learning in boosting motivation and academic achievement has been widely recognized. Scholars like James Paul Gee argue that well-designed games seamlessly integrate learning with engagement. Kahoot exemplifies this by combining traditional teaching techniques with game mechanics, creating a platform that caters for the diverse needs of students while leveraging their familiarity with digital tools (Nuci et al., 2021).

In essence, Kahoot integrates social networking, gaming, and student response systems into a unified learning platform, aiming to enhance engagement and improve classroom dynamics. Its global reach and popularity demonstrate its effectiveness, although some educators remain cautious about potential drawbacks like increased student anxiety. These concerns highlight the need for ongoing research to evaluate Kahoot's impact on learning outcomes and classroom experiences, particularly as it continues to influence educational practices worldwide (Fuster-Guilló et al., 2019; Holbrey, 2020).

Purpose of the Study

The study:

1. examined the frequency of use of Kahoot for undergraduates' academic engagement in Kwara State;
2. investigated the impact of Kahoot on undergraduates' academic engagement in Kwara State;
3. determined the attitude of undergraduates toward the use Kahoot for academic engagement in Kwara State.

Research Questions

The following research questions were raised and answered in the study:

1. How frequent do undergraduates use Kahoot for academic engagement and performance in Kwara State?
2. What is the impact of Kahoot on undergraduates' academic engagement in Kwara State?
3. What is the attitude of undergraduates toward the use Kahoot for academic engagement in Kwara State?

Research Hypotheses

The following hypotheses were formulated and tested in the study:

- There is no significant difference in the impact of Kahoot on undergraduates' academic engagement in Kwara State based on gender.
- There is no significant difference in the attitude of undergraduates toward the use Kahoot for academic engagement in Kwara State based on gender.

Methodology

A descriptive survey research method was adopted for this study. This method was chosen for the study as it can provide information for the study without manipulation of the variables. The population of the study comprised all undergraduates in Kwara State. A multi-stage sampling procedure was used for the study. In the first stage, purposive sampling technique was used to select a university in Kwara State due to her technology inclination while in the second stage, simple random sampling technique was used to select one hundred and fifty (150) respondents as the sample for the study. A researcher designed questionnaire was used in gathering relevant data for the study. The instrument contained three (3) sections with ten (10) items each which was administered to undergraduates in the selected school. The data gathered were analyzed using descriptive and inferential statistics of frequency count, mean, and t-test on SPSs 24.0 statistical package.

Result

Research Question One: How frequent do undergraduates use Kahoot for academic engagement and performance in Kwara State?

Table 1: Distribution showing the frequency of use of Kahoot for undergraduates' academic engagement in Kwara State

Kahoot	Very Often	Often	Seldomly	Never
1. I use Kahoot for game-based learning.	37%	27%	23%	13%
2. I use Kahoot to learn new concepts and skills quickly	40%	25%	20%	15%
3. I use Kahoot to test my problem-solving skills	36%	30%	22%	12%
4. Kahoot helps me develop teamwork and collaboration skills.	42%	23%	19%	16%
5. Kahoot improves my academic performance.	39%	26%	21%	14%
6. Kahoot makes learning more enjoyable for me	34%	31%	24%	11%
7. I participate in Kahoot sessions during class	37%	28%	18%	17%
8. Kahoot helps me to understand course material.	33%	32%	25%	10%
9. Kahoot provides me with immediate feedback on my performance	36%	29%	18%	17%
10. I prefer using Kahoot to other traditional teaching methods	33%	32%	26%	9%

Table 1 indicates the analysis of the frequency of use of Kahoot for undergraduates' academic engagement and performance in Kwara State. It was revealed that students "Very often" or "Often" utilize most of the items in the construct such as using Kahoot in developing teamwork and collaboration skills, and learning new concepts and skills quickly. In summary, it was revealed in the table that Undergraduates in Kwara State frequently use Kahoot game-based learning.

Research Question Two: What is the impact of Kahoot on undergraduates' academic engagement in Kwara State?

Table 1: Cumulative Mean of the Impact of Kahoot on Undergraduates' Academic Engagement in Kwara State

S/N	Items	Mean	STD. D
1.	Using Kahoot promotes digital inclusion among students which improves their attention	2.61	.721
2.	Kahoot makes understanding of subjects clearer to students	2.97	.917
3.	Using Kahoot reduces the attention bias for equitable participation in class among students	2.58	.641
4.	Kahoot ensures that students from anywhere have equal access to participate in class	3.10	.983
5.	Kahoot encourages more students to participate in exercises that make them to understand the lesson more	2.56	.672
6.	Kahoot allows self-paced learning among students and improves their participation in every topic taught	2.59	.658
7.	Students participated in studying exercise due to the interactive feature of Kahoot	2.87	.976
8.	Students are able to participate in sharing knowledge anytime on Kahoot	2.61	.721
9.	Students participate in the learning process always with the use of Kahoot	2.72	.762
10.	Students feel very free to ask questions in subject matters while engaging Kahoot	2.88	.919
	Grand Mean Score	**2.75**	

Table 2 shows that 150 respondents took part in this study and responses to items on the impact of Kahoot on undergraduates' academic engagement in Kwara State revealed that Kahoot had positive impact on undergraduates' academic engagement in Kwara State because the grand mean score of the items 2.75 is above the benchmark grand mean score of 2.50.

Research Question 3: What is the impact of Kahoot on undergraduates' academic performance in Kwara State?

Table 3: Cumulative Mean of the Impact of Kahoot on Undergraduates' Academic Performance in Kwara State

S/N	Items	Mean	STD. D
1.	Kahoot helps me understand course materials better.	2.83	.927
2.	Using Kahoot in class increases my ability to retain information.	2.77	.859
3.	The use of Kahoot helps me to develop my problem-solving skills.	2.98	.928
4.	Kahoot helps me develop teamwork and collaboration skills.	3.22	.973
5.	Using Kahoot improves my academic performance.	2.84	.915
6.	Kahoot makes learning more interactive and enjoyable for me.	2.76	.823
7.	I feel more motivated to participate in class when Kahoot is used.	2.72	.847
8.	I sometimes feel anxious or pressured when using Kahoot due to its fast-paced nature.	2.63	.763
9.	Kahoot provides me with immediate feedback on my performance.	2.91	.934
10.	I would like Kahoot to be used more frequently as a learning tool in my courses.	2.65	.748
	Grand Mean Score	2.83	

Table 3 shows that 150 respondents took part in this study and responses to items on the impact of Kahoot on undergraduates' academic engagement in Kwara State revealed that Kahoot has a positive impact on undergraduates' academic engagement in Kwara State because the grand mean score of the items is 2.83 which is above the benchmark grand mean score of 2.50.

Research Hypotheses

Hypothesis 1: There is no significant difference in the impact of Kahoot on undergraduates' academic engagement in Kwara State based on gender

Table 4: Mean Standard Deviation and t-test Analysis of the Impact of Kahoot on Undergraduates' Academic Engagement in Kwara State based on gender

Gender	N	Mean (X)	Std. Deviation	Std. Error Mean	df	T	Sig.	Decision	
Male	57	21.2	3.56	.336	148	0.26	.121	Ho_1 Not	Rejected.
Female	93	21.9	4.13	.384					

t = 0.26, p > 0.05, df = 148

Table 4 shows that the male undergraduates had mean score of 21.2 with standard deviation 3.56 while female students had mean score of 21.9 with standard deviation 4.13. The calculated t-value

was 0.26 while its calculated significance value 0.121 of df2/198 at alpha level of 0.05. On this premise, the postulated hypothesis was therefore not rejected. It can be deduced that there was no significant difference in the impact of Kahoot on undergraduates' academic engagement in Kwara State based on gender. The reason being that the calculated significance value of 0.121 was greater than the 0.05 alpha value ($p > 0.05$).

Hypothesis 2: There is no significant difference in the impact of Kahoot on Undergraduates' academic performance Kwara State based on gender

Table 5: Mean Standard Deviation and t-test Analysis of the attitude of undergraduates toward the use of Kahoot for academic engagement in Kwara State based on gender

Gender	N	Mean (X)	Std. Deviation	Std. Error Mean	df	T	Sig.	Decision
Male	57	22.8	3.74	.428				Ho_3 Not Rejected
					148	0.42	.187	
Female	93	29.6	4.77	.489				

$t = 0.42$, $p > 0.05$, $df = 148$

Table 5 shows the male undergraduates in Kwara State had mean score of 22.8 with standard deviation 3.74 while female students had mean score of 29.6 with standard deviation 4.77. The calculated t-value was 0.42 while its calculated significance value 0.187 of df2/148 at alpha level of 0.05. On this premise the postulated hypothesis was therefore not rejected. It can be deduced that there was no significant difference in the attitude of undergraduates toward the use of Kahoot for academic engagement in Kwara State based on gender. The reason being that the calculated significance value of 0.187 was greater than the 0.05 alpha value ($p > 0.05$).

Discussion of Findings

The findings of the study revealed that Kahoot had a positive impact on undergraduates' academic engagement in Kwara State. This is in consonance with the study of (Nuci et al., 2021) found that Kahoot platform has positive impact on students and cater for their diverse needs while leveraging their familiarity with digital tools. The findings also there is no significant difference in the impact of Kahoot on undergraduates' academic engagement in Kwara State based on gender. This is in line with the findings of Benhadj, El Messaoudi and Nfissi (2019) who found that the embedded visual and audio elements in Kahoot present a gaming capability to promote engagement, motivation, and learning among almost all students irrespective of their gender. Likewise, the

findings of the study revealed that there is no significant difference in the attitude of Undergraduates toward the use of Kahoot for academic engagement in Kwara State based on gender. This agrees with the findings of Subandi et al. (2018). who found that Kahoot increases engagement, motivation, enjoyment, and concentration to improve learning performance and classroom dynamics with student having positive attitude toward it use without bias in gender.

Conclusion

The integration of Kahoot as a game-based learning tool has significant impact on the academic engagement of undergraduates in Kwara State. The platform's interactive nature has successfully transformed traditional learning environments into dynamic, participatory spaces. This shift has resulted in heightened student engagement, where learners actively interact with course content, thus fostering a deeper understanding and retention of materials with positive attitude from the undergraduates with bias to gender.

Recommendation

It is therefore recommended that Kahoot should be encouraged in universities as learning platform for an engaging learning experience.

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