Original Research Article

Use of the Kahoot! application for undergraduate medical students in community medicine

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ABSTRACT

Background: Nowadays, majority of the students all over the world are digital natives. Due to the advancement in internet and online technology, a various web-based games have been developed. One of the popular web-based learning tools is Kahoot! The aim of this paper was to explore the experience of using Kahoot! app as a tool for conducting quiz for undergraduate medical students.
Methods: The topic of contraceptive ppt was distributed to the third year MBBS medical students 2 days prior to the revision class. A 70-item e-quiz on this topic using Kahoot! app was conducted on a sample of 150 third year MBBS medical students in 2023. At the end of e-quiz, we got feedback through Google forms-created questionnaire.
Results: Out of 150 students, 66.6% (n=100) reviewed the pre-class PowerPoint, and 99.3% (n=149) provided positive feedback highlighting themes like organization, interest, fun, interaction, motivation, and knowledge reinforcement. Moreover, 98.6% (n=148) supported other faculty adopting this approach by sharing materials beforehand and using Kahoot! quizzes for a more student-driven and interactive learning experience.
Conclusions: As a part of teaching, Kahoot! app has made learning easier, more enjoyable, encourage the students to study and strengthens the student-centred learning. It is suggested that such study methods should be utilized more in teaching and can be incorporated in academic curriculum as well.

Keywords: Digital natives, Kahoot! quiz game, Student engagement, Web-based learning tool

INTRODUCTION

Nowadays, the majority of students are Z-learners or digital natives who have spent their entire lives with various tools of the digital age.[1] These phenomena have become a serious challenge for higher education institutions to stay renewed by adapting to these changes and constantly improving both the quality of their teaching-learning practices and policies so that the pedagogical practices will remain effective and competitive.[2,3]

COVID 19 caused abrupt global school closures and impacting nearly 1.6 billion learners and forced educators to pivot entirely to online instruction overnight.[4] According to UNESCO's study, more than 290 million students worldwide have been impacted by the closure of educational institutions.[5]

Among the many ways utilized for teaching purposes is the use of classroom response systems (CRS), else known as audience response systems (ARS) or students response systems (SRS).[6] These systems increase questioning and answering in the classroom and provide instant feedback to teachers and learners.[7] One of the gamification applications used in the field of education is Kahoot!. Kahoot! is an application where students in the classroom can actively participate in preparing for exams and

measuring and evaluating with music and effects that give excitement to the competition. Kahoot! is an application that allows you to create multiple choice quizzes, matching quizzes, surveys, true-false, short answer, ranking questions, video-audio questions, word cloud, or puzzles. Kahoot! is an application that aims to increase participation, motivation, enjoyment, and concentration to improve learning performance and interaction.[8]

METHODS

A cross-sectional study was conducted with 150 third-year MBBS students at Seth GS Medical College and KEM Hospital, Mumbai in 2023 focusing on the topic of contraceptive methods in Community Medicine. Two days prior to the revision class, students received a PowerPoint presentation covering key content, followed by a 70-item multiple choice e quiz administered via the Kahoot! platform to reinforce learning and engage students actively. The lecturer created the quiz by logging into Kahoot! using an email and password, titling the quiz appropriately, entering each item with four plausible alternatives, setting response times based on difficulty, selecting the correct option, and saving each question iteratively until all items were entered. Upon completion, the privacy settings were changed to "public" to enable student access, and clear instructions for students were added at the beginning of the quiz to ensure a smooth experience. During the session, students participated using their own devices, and their interaction provided real-time feedback and enhanced engagement a benefit supported by prior research demonstrating improved learning outcomes and motivation with Kahoot! as a formative assessment tool. Immediately after the quiz, participants completed a Google forms-based feedback survey that included five items assessing their enjoyment of the session; clarity of questions; whether they reviewed the pre-shared PowerPoint; their satisfaction with the quiz format, with open-ended prompts to elaborate; and their willingness to have other instructors adopt the same approach of sharing a PPT followed by a Kahoot! quiz. Quantitative quiz performance and closed-ended survey responses were analyzed descriptively, while qualitative comments were thematically categorized to identify common perceptions and experiences. Participation was voluntary with informed consent and confidentiality assured.

RESULTS

Of the 150 third-year MBBS students who took part in the e-quiz session on contraceptive methods, 66.6% (n=100) (Figure 1) reported that they had reviewed the PowerPoint presentation distributed two days before the class. This preparatory engagement appears to have reinforced the students readiness; following the session, 149 students (99.3%) (Figure 2) provided positive feedback about their experience. Notably, 98.6% (n = 148) affirmed that they would welcome similar

instructional approaches by other teachers that is, sharing a topic-specific PPT followed by a Kahoot! quiz.
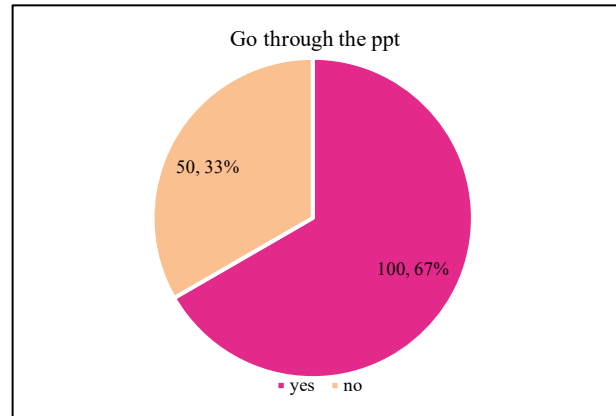

Figure 1: Number of students go through the PowerPoint presentation.
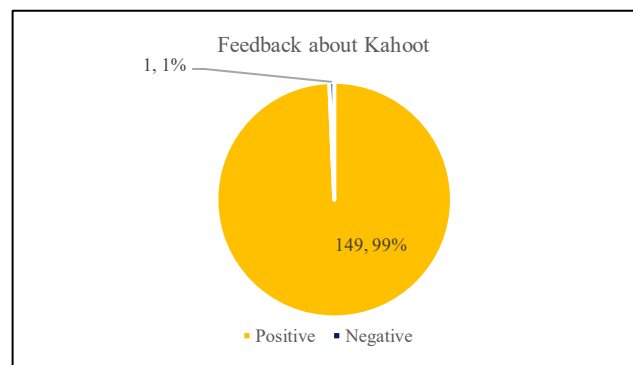

Figure 2: Feedback about their experience with Kahoot.

Qualitative thematic analysis of open-ended responses revealed six central themes (Table 1): organization, interesting, fun and enjoyment, interactive, motivation, and knowledge. Respondents described the Kahoot! quiz as "fun and engaging," emphasizing its role in promoting teamwork and peer interaction, fostering a healthy competitive atmosphere, and stimulating motivation to engage deeply with the material. Many participants noted that the format enhanced their conceptual understanding and provided a useful means to review previously taught content. In their own words, the platform transformed the subject of preventive and social medicine into something "very interesting," and "made us active participants" in the learning process.

These findings echo broader literature on the use of Kahoot! in medical and health-professions education. A study found that students perceived Kahoot! as an "attractive learning tool," a "source of motivation," and a method for learning guidance, offering immediate feedback and fostering self-reflection and self-assessment- key elements of effective formative assessment.

Table 1: Domain and analysis.

Theme	Category	Code	Frequency
Organization	Presentation	The way of conducting quiz	7
		The way of teaching	
	Format of quiz	Concept of quiz	13
		Creative format	
		Nice animation	
		Arrangement of questions	
Interesting	Engaging	Attentive throughout the session	10
		Better way to remember things	
		Adrenaline rush	
	Rewarding	Rewards with chocolate	1
	Learning	Made the learning easy and fast	13
		Unique way	
		Exciting way of learning	
	Game/competition	Competition made us to want study	9
		Encourage to prepare for the next time	
Fun and enjoyment	Kahoot! features	The exciting music	34
		The exciting countdown	
		An enjoyable tool	
		Time was quite less	
Interactive	Team work	Interface communication	7
	Easy to grasp and remember	Useful to revise	36
		Interaction participation of everyone	
Motivation	To study psm	Not boring	8
		Increases enthusiasm and spirit	
		To study for the topic	
Knowledge	Utilization of knowledge	Reviewing the knowledge	11
		Informative	

Together, the quantitative and qualitative feedback from students in this study alongside corroborating evidence from prior research strongly indicates that combining pre-class preparation via a PPT with a gamified e-quiz using Kahoot! yields high levels of satisfaction, enhances engagement and conceptual learning, and encourages adoption of similar self-directed learning (SDL) strategies across the curriculum.

DISCUSSION

In a study conducted at a private medical university in Malaysia, 50 students reported overwhelmingly positive perceptions of the Kahoot! e-quiz: most found it "not time-consuming" (n=38), "appropriate for their learning process" (n=34), "effective" (n=37), and capable of creating "fun-learning in the classroom" (n=46), with many indicating they "liked to use it more" (n=39).[9] Additionally, 38 students strongly agreed that Kahoot! "motivates their learning process," 31 believed it "may improve their academic performance," and 45 students encouraged lecturers to adopt it. These findings resonate strongly with our own study, where 99.3% (n=149) of students provided positive feedback on the Kahoot!-based e-quiz, and 98.6% (n=148) expressed support for

extending the PPT + Kahoot! SDL format to other sessions. Both studies reveal high levels of learner satisfaction and willingness to engage with gamified learning approaches across contexts.

Rahman et al reported that 99.5% of students played Kahoot! as part of their academic routine, with substantial comfort (70.7%), and overwhelmingly positive perceptions- 91% described it as a "fun and learn activity," 80.5% acknowledged that it enhanced their knowledge, 93.5% believed it improved their class performance, 88.3% noted increased attentiveness, and 76.7% felt it elevated their academic results.[10]

Similarly, our study found exceptionally high levels of student satisfaction: 99.3% of participants reported a positive experience with our PPT + Kahoot! e-quiz format, 98.6% endorsed its adoption by other instructors, and nearly all students highlighted themes of enjoyment, interactivity, motivation, teamwork, and enhanced knowledge retention.

The online marketing (OM) lecture revealed high median ratings (mostly 5.00) on Kahoot's usefulness and fun, with no significant gender differences (p>0.3).[11] This

aligns with our findings, where 99.3% of students reported positive experiences and described the tool as engaging and motivating- indicating broad appeal regardless of gender.

Pham and Nguyen study of 175 students revealed high mean ratings (4.03-4.30) for Kahoot! as a warm-up activity, indicating that it helps lessons proceed faster, boosts study quality and productivity, eases learning, and is overall useful.[12] These results resonate closely with our findings: 99.3% of students rated the Kahoot! e-quiz experience positively, citing themes such as enhanced motivation, active engagement, knowledge reinforcement, and fun learning.

CONCLUSION

Integrating Kahoot! as a warm up activity in language education has proven highly effective: students reported substantial increases in motivation, enjoyment, engagement, and knowledge reinforcement, all contributors to a more dynamic and learner centered classroom atmosphere. To maximize its impact, educators should align quiz questions with lesson objectives to ensure meaningful learning, use the tool consciously to preserve its novelty and effectiveness. Thoughtfully embedded into curricula, Kahoot! not only makes learning easier and more enjoyable but also supports deeper retention and student centered pedagogies, making it a valuable addition to modern instructional design.

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