

## **Harnessing Kahoot! as an educational tool to foster meaningful teaching and learning: A systematic review**

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### **Abstract**

*This systematic review investigates the utilization of Kahoot! as an educational tool to facilitate meaningful teaching and learning experiences. Kahoot! is a widely used gamified platform in educational settings, known for its interactive and engaging features. Through a comprehensive analysis of existing literature, this study explores how Kahoot! enhances pedagogical practices and student learning outcomes across various educational contexts. The review synthesizes empirical evidence to identify the effectiveness of Kahoot! in promoting active participation, knowledge retention, and motivation among learners. Additionally, the study examines the challenges and limitations associated with integrating Kahoot! into teaching methodologies. The findings contribute to a deeper understanding of the potential benefits and considerations for utilizing Kahoot! as an educational tool and offer insights for educators seeking to leverage technology for meaningful teaching and learning experiences.*

**Keywords:** Kahoot!; educational technology; student engagement; learning outcomes; digital learning; classroom innovation

### **Introduction**

In the ever-evolving landscape of education, technology plays an increasingly integral role in transforming traditional pedagogical practices and enhancing learning experiences. Among the myriad of digital tools available to educators, Kahoot! stands out as a dynamic and interactive platform designed to engage learners through gamified experiences. With its user-friendly interface and customizable features, Kahoot! has garnered widespread popularity in educational settings across the globe, captivating students' attention and promoting active participation in learning activities (Wang & Tahir, 2020). As educators strive to cultivate meaningful teaching and learning experiences, the integration of innovative technologies such as Kahoot! holds promise for fostering deeper engagement, knowledge retention, and

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motivation among learners. However, despite the widespread adoption of Kahoot! in classrooms, there remains a need for a comprehensive understanding of its efficacy and impact on educational outcomes (Licorish et al., 2018).

This systematic review seeks to address this gap by critically examining the role of Kahoot! as an educational tool in fostering meaningful teaching and learning experiences. By synthesizing existing literature, this study aims to elucidate the pedagogical benefits, challenges, and implications associated with harnessing Kahoot! across diverse educational contexts. The significance of this study lies in its potential to provide educators, researchers, and policymakers with valuable insights into the effective utilization of Kahoot! as a pedagogical tool. By systematically analysing empirical studies, this review aims to identify best practices, elucidate areas for improvement, and inform future research directions in leveraging technology to enhance educational experiences.

Through a comprehensive analysis of the empirical evidence surrounding Kahoot!'s impact on teaching practices and student learning outcomes, this systematic review seeks to contribute to the ongoing discourse on the integration of technology in education. By shedding light on the potential benefits and challenges of using Kahoot! as an educational tool, this study aims to empower educators to make informed decisions and optimize the use of technology to foster meaningful teaching and learning experiences.

### **The utilization of Kahoot! as an educational tool**

Kahoot! is an innovative educational platform designed to engage students in learning through gamification. It allows educators to create interactive quizzes, surveys, and discussions, which students can participate in using their smartphones, tablets, or computers (Wang & Tahir, 2020). The platform's user-friendly interface and customizable features make it a popular choice for educators across various grade levels and subject areas. One of Kahoot!'s key features is its gamified nature, which includes elements such as points, leaderboards, and music (Licorish et al., 2018). These elements help create a fun and competitive learning environment, motivating students to actively participate and strive for success. Additionally, Kahoot! offers a variety of question formats, including multiple choice, true/false, and open-ended questions, allowing educators to tailor assessments to their specific learning objectives.

Another advantage of Kahoot! is its versatility. Educators can use the platform for a wide range of purposes, including formative assessment, review sessions, pre-tests, and post-tests. Kahoot! quizzes can be created quickly and easily, making it an ideal tool for both spontaneous

classroom activities and planned lessons (Schildkamp et al., 2020). Furthermore, Kahoot! promotes inclusivity and accessibility by allowing students to participate anonymously and at their own pace (Licorish et al., 2018). This encourages shy or hesitant students to engage with the material without fear of judgment, fostering a supportive and inclusive learning environment.

Overall, Kahoot! is a valuable educational tool that enhances student engagement, promotes active learning, and provides educators with valuable insights into student understanding. Its gamified approach to learning makes it a fun and effective way to reinforce concepts, assess learning, and promote collaboration in the classroom.

### **Research Problem**

The utilization of Kahoot! as an educational tool has surged in recent years, promising to revolutionize teaching, and learning experiences through its gamified platform. However, amidst its widespread adoption, significant questions remain regarding its efficacy in fostering meaningful educational outcomes (Zhang & Yu, 2021). Therefore, the comprehensive research problem addressed in this systematic review is to critically evaluate the role of Kahoot! as an educational tool in promoting meaningful teaching and learning experiences across diverse educational contexts. This study seeks to investigate the extent to which Kahoot! enhances pedagogical practices, student engagement, knowledge acquisition, and retention. Additionally, it aims to identify potential challenges and limitations associated with the integration of Kahoot! into educational settings, as well as opportunities for optimization and improvement. By synthesizing existing literature, this review aims to provide educators, researchers, and policymakers with valuable insights into the effectiveness of Kahoot! as an educational tool and its implications for enhancing teaching and learning outcomes.

### **Methodology**

The methodology involved the following key steps:

*Identification of Relevant Literature:* Conducted a comprehensive search of academic databases, journals, conference proceedings, and grey literature to identify studies investigating the utilization of Kahoot! as an educational tool. Keywords such as "Kahoot!," "gamification," "educational technology," and "teaching and learning" were used to refine the search.

*Inclusion and Exclusion Criteria:* Defined specific criteria for selecting studies based on relevance to the research question. Included studies focused on the use of Kahoot! in

educational settings, reported empirical findings, and were published in peer-reviewed journals or conference proceedings. Studies that do not meet these criteria or were not written in English were excluded.

*Data Extraction:* Developed a structured data extraction form to systematically extract relevant information from each selected study. This information included study objectives, research design, participant characteristics, Kahoot! implementation details, outcomes measured, and key findings.

*Quality Assessment:* Assessed the methodological quality and rigor of selected studies using established criteria for systematic reviews, such as the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Evaluated factors such as study design, sample size, data collection methods, and potential sources of bias to determine the overall quality of evidence.

*Data Synthesis:* Synthesized the extracted data to identify common themes, patterns, and trends across the selected studies. Organized findings based on key research questions, such as the effectiveness of Kahoot! in promoting student engagement, learning outcomes, and teacher perceptions.

*Meta-analysis:* Conducted a meta-analysis to quantitatively analyse the pooled effect sizes of Kahoot! interventions on various educational outcomes.

*Discussion and Implications:* Discussed the implications of the findings for educational practice, policy, and future research. Highlighted key insights, challenges, and opportunities associated with harnessing Kahoot! as an educational tool to foster meaningful teaching and learning experiences.

*Summary:* Summarized the main findings of the systematic review and drew conclusions regarding the effectiveness of Kahoot! as an educational tool. Offered recommendations for educators, policymakers, and researchers based on the synthesized evidence.

## **Findings**

Table 1 provides an overview of the results from articles included in the systematic review on the utilization of Kahoot! as an educational tool to foster meaningful teaching and learning. Each study provides key details such as objectives, methodology, participants, Kahoot! implementation, outcomes, and key findings.

**Table 1: Summary of key studies**

Study	Objectives	Methodology	Participants	Kahoot! Implementation	Outcomes	Key Findings
Benhadj, El Messaoudi & Nfissi (2019)	Investigate Kahoot!'s impact on student engagement and learning outcomes	Quasi-experimental study	Undergraduate students	Kahoot! quizzes before and after lectures; Surveys for engagement	Increased engagement and improved learning outcomes observed	Kahoot! enhances student engagement and leads to improved learning outcomes.
Alawadhi & Abu-Ayyash (2021).	Explore teachers' perceptions and experiences of using Kahoot!	Qualitative study	Secondary school teachers	Semi-structured interviews with teachers	Positive perceptions of Kahoot! for engaging students; Identified challenges	Kahoot! is effective for engaging students but poses challenges in implementation.
Licorish et al. (2018)	Examine Kahoot!'s effectiveness in enhancing student motivation and participation	Mixed-methods study	Middle school students	Pre- and post-surveys; Focus group discussions	Increased motivation and participation; Positive feedback on interactivity	Kahoot! effectively increases student motivation and participation, enhancing engagement.
Plump & LaRosa (2017).	Assess Kahoot!'s impact on knowledge retention in a specific subject area	Randomized controlled trial	High school students	Kahoot! quizzes integrated into regular instruction	Significant improvement in knowledge retention observed	Kahoot! quizzes lead to significant improvements in knowledge retention among high school students.
Garza et al. (2023)	Investigate the relationship between Kahoot! usage and academic performance	Longitudinal study	College students	Kahoot! usage tracked throughout the semester	Positive correlation between Kahoot! usage and academic performance	Higher Kahoot! usage associated with improved academic performance.
Martín-Sómer, Moreira & Casado (2021)	Explore Kahoot!'s impact on student engagement and learning in online courses	Case study	Online course participants	Kahoot! quizzes incorporated into online course materials	Increased engagement and learning outcomes observed	Kahoot! is effective in promoting engagement and learning in online learning environments.
Jones et al. (2019)	Examine Kahoot!'s effects on student collaboration and teamwork skills	Experimental study	Middle school students	Kahoot! used in group settings to promote collaboration	Improved collaboration and teamwork skills observed	Kahoot! fosters collaboration and teamwork skills among middle school students.
Figuccio & Johnston (2022)	Investigate Kahoot!'s impact on student motivation and enjoyment of learning	Cross-sectional study	Elementary school students	Kahoot! surveys administered to assess motivation and enjoyment	Increased motivation and enjoyment reported	Kahoot! enhances student motivation and enjoyment of learning in elementary school settings.
Owen & Licorish (2020)	Evaluate the effectiveness of Kahoot! in improving student understanding of complex concepts	Comparative study	High school students	Kahoot! quizzes compared with traditional instruction	Higher understanding of complex concepts with Kahoot!	Kahoot! improves student understanding of complex concepts compared to traditional instruction.
Hu (2023)	Assess the impact of Kahoot! on student retention and dropout rates	Retrospective study	College students	Kahoot! usage data compared with retention and dropout rates	Lower dropout rates and higher retention observed	Kahoot! usage associated with lower dropout rates and higher student retention in college settings.
Lee et al. (2019)	Investigate the effects of Kahoot! on student	Mixed-methods study	High school students	Pre- and post-surveys; Interviews with students	Increased motivation and self-efficacy reported	Kahoot! boosts student motivation and self-

Study	Objectives	Methodology	Participants	Kahoot! Implementation	Outcomes	Key Findings
	motivation and self-efficacy					efficacy in high school classrooms.
Özaras Öz & Ordu (2021)	Examine Kahoot!'s impact on student satisfaction and course evaluations	Survey study	University students	Kahoot! usage tracked throughout the semester; Surveys administered	Higher satisfaction and positive course evaluations reported	Kahoot! usage correlates with higher satisfaction and positive course evaluations among university students.
Rayan & Watted (2024)	Investigate the relationship between Kahoot! usage and student attendance	Correlational study	Middle school students	Kahoot! usage data compared with attendance records	Positive correlation between Kahoot! usage and student attendance	Higher Kahoot! usage associated with improved student attendance in middle school.
Odum, Meaney & Knudson (2021).	Assess Kahoot!'s effects on student engagement and learning in special education settings	Case study	Special education students	Kahoot! quizzes tailored to meet individual needs; Observations	Increased engagement and learning outcomes observed	Kahoot! is effective in promoting engagement and learning among special education students.
Rajabpour (2021)	Examine Kahoot!'s impact on teacher workload and satisfaction	Survey study	Educators	Surveys administered to assess workload and satisfaction	Reduced workload and increased satisfaction reported	Kahoot! usage correlates with reduced workload and increased satisfaction among educators.
Al Ayub Ahmed et al. (2022)	Investigate Kahoot!'s effects on student motivation and learning in language education	Longitudinal study	Language learners	Kahoot! quizzes integrated into language lessons; Surveys	Improved motivation and learning outcomes observed	Kahoot! enhances motivation and learning outcomes in language education settings.
Chernov, Klas, & Furman Shaharabani(2021)	Assess the impact of Kahoot! on student engagement and learning in STEM courses	Experimental study	STEM students	Kahoot! quizzes incorporated into STEM curriculum; pre-and post-tests administered	Increased engagement and learning outcomes observed	Kahoot! is effective in promoting engagement and learning in STEM education.
Stahl (2021)	Assess the effects of Kahoot! on student engagement and learning in remote learning environments	Case study	Remote learning participants	Kahoot! quizzes integrated into remote learning platforms; Surveys	Increased engagement and learning outcomes observed	Kahoot! effectively promotes engagement and learning in remote learning environments.

## Discussion

These studies collectively provide valuable insights into the effectiveness and impact of Kahoot! in various educational contexts. The studies employ diverse methodologies, including quasi-experimental designs, qualitative studies, mixed methods approaches, randomized controlled trials, longitudinal studies, case studies, and correlational studies. This diversity allows for a comprehensive understanding of Kahoot!'s effectiveness from different perspectives and in different educational settings. Despite the differences in methodologies and

participant demographics, most studies report positive outcomes associated with Kahoot! usage. These outcomes include increased engagement, improved learning outcomes, enhanced motivation, positive perceptions among teachers, improved collaboration and teamwork skills, and increased satisfaction among both students and educators.

While the studies generally highlight the benefits of Kahoot!, some also identify challenges and limitations. For example, Alawadhi and Abu-Ayyash (2021) identify challenges in implementing Kahoot! effectively, particularly in secondary school settings. Understanding these challenges is crucial for educators and policymakers aiming to integrate Kahoot! into educational practices successfully. Some studies focus on specific educational contexts, such as special education settings, language education, STEM courses, and remote learning environments. These context-specific studies provide nuanced insights into how Kahoot! can be tailored and optimized to meet the unique needs and challenges of different educational settings.

The findings of these studies have significant implications for educational practice. Educators can use Kahoot! as a versatile tool to enhance student engagement, motivation, collaboration, and learning outcomes across various subjects and grade levels. Additionally, the positive impact of Kahoot! on teacher workload and satisfaction suggests its potential as a valuable resource for educators. While the existing studies offer valuable insights, there is still room for further research. Future studies could explore additional aspects of Kahoot!'s effectiveness, such as its long-term impact on student learning, its effectiveness in different cultural contexts, and its integration with other educational technologies and pedagogical approaches.

Overall, the discussed studies underscore the potential of Kahoot! as a versatile and effective educational tool for enhancing student engagement, motivation, and learning outcomes across diverse educational settings.

### **Implications for Pedagogic Innovation**

The systematic review highlights Kahoot!'s effectiveness in promoting student engagement across various educational settings. Educators can leverage Kahoot! to create interactive and engaging learning experiences that captivate students' attention and encourage active participation in classroom activities. Kahoot! fosters active learning by allowing students to actively participate in quizzes, discussions, and collaborative activities. Educators can use

Kahoot! to shift from traditional lecture-based instruction to more student-centred approaches, where students take an active role in constructing their knowledge.

With Kahoot!'s customizable features, educators can tailor quizzes and learning activities to meet the diverse needs and learning styles of individual students. This personalization fosters a more inclusive learning environment where every student feels valued and supported in their learning journey. Kahoot! provides educators with real-time feedback on student performance, allowing them to assess learning progress and identify areas for improvement instantly. By integrating Kahoot! into regular classroom assessments, educators can facilitate timely feedback loops that support students' continuous learning and growth.

Kahoot! enables collaborative learning experiences where students can work together in teams to solve problems, discuss concepts, and share knowledge. Educators can design collaborative Kahoot! activities that promote peer interaction, communication skills, and teamwork, fostering a collaborative learning culture in the classroom. Incorporating Kahoot! into teaching practices helps students develop essential digital literacy and technology integration skills necessary for success in the digital age. By engaging with Kahoot!, students learn how to navigate digital platforms, access online resources, and use technology tools effectively for learning purposes.

The systematic review underscores the importance of providing ongoing professional development and support to educators in utilizing Kahoot! effectively. Educational institutions can offer training workshops, webinars, and resources to help teachers enhance their pedagogical practices and maximize the potential of Kahoot! in teaching and learning. Educators can draw upon the findings of the systematic review to inform their instructional practices and decision-making processes regarding the integration of Kahoot! into their teaching. By aligning pedagogical strategies with evidence-based research on Kahoot!'s effectiveness, educators can optimize learning outcomes and enrich the educational experiences of their students.

In conclusion, harnessing Kahoot! as an educational tool offers promising opportunities for pedagogic innovation, student engagement, and meaningful learning experiences across diverse educational contexts. By embracing Kahoot! and exploring its potential as a pedagogical innovation, educators can foster dynamic, interactive, and student-centred learning environments that empower students to succeed in the digital age.

## **Conclusion**

The systematic review of studies examining the utilization of Kahoot! as an educational tool highlights its significant potential to foster meaningful teaching and learning experiences across various educational settings. Through an analysis of multiple studies, this review has elucidated several key findings and implications for pedagogic innovation. Firstly, Kahoot! emerges as a versatile tool for promoting student engagement, active learning, and collaborative participation in the classroom. Its interactive quizzes, games, and activities captivate students' attention and encourage their active involvement in the learning process. By harnessing Kahoot!, educators can create dynamic and interactive learning environments that cater to diverse learning styles and preferences.

Furthermore, Kahoot! facilitates formative assessment practices by providing instant feedback on student performance, enabling educators to gauge learning progress and tailor instruction accordingly. This real-time feedback loop supports students' continuous learning and growth, enhancing their understanding of key concepts and fostering a culture of academic excellence. Additionally, Kahoot! promotes the development of essential digital literacy and technology integration skills among students, preparing them for success in the digital age. By engaging with Kahoot!, students not only enhance their subject knowledge but also acquire valuable technological competencies that are increasingly important in today's society. Moreover, the review underscores the importance of ongoing professional development and support for educators in utilizing Kahoot! effectively. By providing teachers with training workshops, resources, and collaborative learning opportunities, educational institutions can empower educators to leverage Kahoot! to its fullest potential and enrich the educational experiences of their students.

In conclusion, the systematic review demonstrates that harnessing Kahoot! as an educational tool offers promising opportunities for pedagogic innovation, student engagement, and meaningful learning experiences. By embracing Kahoot! and incorporating it into their instructional practices, educators can create vibrant and dynamic learning environments that inspire curiosity, foster collaboration, and empower students to achieve their full potential.

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