



Towards the sustainable development of gamification in primary education: Third graders' perceptions of Kahoot! in EFL classroom

Konstantina Derveni¹ and Radka Wildová²

¹Faculty of Education, Department of Pre-Primary & Primary Education, Charles University, Czech Republic (ORCID: [0000-0003-4183-9817](https://orcid.org/0000-0003-4183-9817))

²Faculty of Education, Department of Pre-Primary & Primary Education, Charles University, Czech Republic (ORCID: [0000-0002-5621-4433](https://orcid.org/0000-0002-5621-4433))

Corresponding Author: Konstantina Derveni, konstantina721@hotmail.com

Submitted: 15 April 2026 Revised: 22 June 2026 Accepted: 20 July 2026 Published online: 11 September 2026

Abstract

The increasing integration of digital technologies in EFL classrooms has reshaped student learning experiences, particularly in primary education. This study investigates 18 multilingual third-grade students' perceptions of Kahoot! as a gamified learning tool in English language activities. Adopting a qualitative study design, data were collected through semi-structured interviews and analyzed using thematic analysis. Findings indicate that students generally perceived Kahoot! as an engaging and motivating tool that enhanced classroom interaction, increased participation and interest during lessons. Participants also reported perceived improvements in vocabulary acquisition and overall English learning, suggesting that gamification may support both affective and cognitive aspects of language learning. These findings contribute to ongoing discussions on digital transformation in education and highlight the potential of gamified tools in supporting sustainable, student-centered pedagogical practices in primary classrooms. Importantly, the study addresses a gap in research on young students' experiences and provides insights for teachers seeking to design meaningful, technology-enhanced language instruction.

Keywords: EFL; Game-based response system; Gamification; Kahoot!; Primary education

1. Introduction

The integration of technology in education has evolved significantly over the past decades. At the same time, traditional teaching methods are being challenged by the needs of modern learners, who respond better to interactive and technology-based environments (Mawarni et al., 2025). In response, approaches such as Computer-Assisted Language Learning [CALL] and Web 2.0 tools have transformed learning, while newer methods like Mobile-Assisted Language Learning [MALL], mobile learning and game-based learning continue to shape how students engage with content. Among these innovations, digital games have emerged as particularly powerful in enhancing academic performance and engagement (Göksün & Gürsoy, 2019). They are also increasingly discussed as tools that support sustainability-oriented educational practices, especially in relation to the digital transformation in education (Novo et al., 2024). According to Wang (2015), such tools support learning in several ways; they enable teachers to monitor student progress in real time and provide immediate feedback; encourage students to engage in across different subjects; and support the development of skills not always addressed through traditional instruction, to improve motivation and engagement.

Building on this, particular emphasis has been placed on the role of game-based approaches in language learning, especially in English as a Foreign Language [EFL] context (Gil-Acirón, 2022). Language learning itself is a challenging process already and students may gradually lose interest and motivation over time. Researchers believe that incorporating educational games into the learning process is a potential solution (Lee & Hammer, 2011). One way to achieve this goal is through gamification platforms, such as Kahoot!. The incorporation of gamification into foreign language instruction has been associated with increased learner motivation, engagement, confidence, and persistence, while also helping to create more enjoyable and less anxiety-provoking learning experiences (Amnouychokanant, 2025; Derveni & Wildová, 2026). When gamified activities incorporate collaborative and interactive tasks, they may also provide opportunities for peer interaction and socially supported language learning (Alzubi et al., 2024). But what exactly does gamification mean in actual practice? How can games be effectively used in

EFL classrooms? And most importantly, what do students themselves think about these approaches?

1.1. Gamification and Game-based Student Response Systems

To further elaborate, gamification has emerged as a student-centered educational method designed to meet today's needs (Fahad Alzuhair & Mohammed Alkhuzaim, 2022). In learning environments, game design elements may include points, levels, challenges, feedback, rules, and progression structures designed to make learning activities more engaging and motivating (Hellberg, 2023). When these elements are meaningfully integrated into instructional design rather than added as isolated rewards, gamified activities can support students' participation, enjoyment, and learning experiences (Rigzin, 2026). Common gamification features include challenges, points, levels, badges, and leaderboards or rankings, which can be combined and adapted to instructional goals and learner needs (Hellberg, 2023; Toda et al., 2019). Some of these features are self-focused, emphasizing individual achievement and personal progress. Others are social-oriented, promoting interactive competition or collaboration, such as through leaderboards. Social elements place students within a community where their accomplishments are visible, fostering a sense of competition that encourages active participation (Huang & Soman, 2013). Even when a game is not cooperative and there is no element of competition with others, players compete with themselves. By storing the score, students can observe the results they achieve and try to surpass their previous score, comparing how much their performance has improved from their previous attempts (Zhang & Hasim, 2023). Beyond its motivational benefits, gamification is increasingly viewed as a component of sustainable educational design that supports learners to act on complex challenges and participate in collaborative problem-solving (Spanellis et al., 2024).

A key application of gamification in classrooms is through Game-based Student Response Systems [GSRs], which engage learners by combining interactive technology with game elements to increase participation and attendance (Graham, 2015). GSRs have been shown to offer real-time immediate feedback (Ebadi et al., 2023), while also supporting learner autonomy, even among quieter students (Licorish et al., 2018). These systems can be used in various ways (Wang, 2015). For example, they can serve as a review tool at the end of a lesson or as a pre- and post-lecture quiz to assess prior knowledge and measure learning outcomes. In addition, having students create their own quizzes encourages deeper learning, as it requires them to fully understand the content, design meaningful questions and answers and even create illustrative material. This process reinforces students to take on leadership roles by guiding their peers through the quizzes. According to Licorish et al. (2018), using GSRs encourages students to reflect, experiment and apply knowledge, which aligns with Novak's (1998) distinction between deep and surface learning. GSR activities promote deeper learning by requiring students to think critically, reflect and receive feedback during and after activities. As a result, students become more engaged and are better able to apply their knowledge in real-life contexts. One of the most widely known GSR learning platforms is Kahoot!.

1.2. Kahoot! Game

Kahoot! evolved from the Lecture Quiz research project initiated at the Norwegian University of Science and Technology in 2006 (Wang & Tahir, 2020). Several prototypes were developed and tested before Kahoot! officially launched in September 2013. In 2018, Kahoot! reported that by the end of 2017, its platform had over 70 million unique monthly active users and more than 1.6 billion players have played on it. It ranked 5th among the 40 most accessed digital learning tools (Adnyani et al., 2020). Once the Kahoot! quiz is set up, a unique game PIN is generated and students can join by entering the PIN on their devices without needing to register. The quiz is displayed on a shared screen, while participants answer in real-time on their devices. Teachers are able to develop their own quizzes as well as use and adapt questions generated by colleagues. Points are awarded based on the accuracy and speed of answers and leaderboards are shown after each question. After the game, students can view their scores and the top three are ranked on a

podium. Occasionally, the scoreboard highlights players outside the top five, such as those who have answered several questions correctly in a row or making a strong comeback. A lively lobby tune is played during this waiting period, setting the mood for the game. Detailed reports for assessment can be saved, including the number of correct answers, success rates and unanswered questions and students can rate the quiz and share feedback on their learning experience (Plump & LaRosa, 2017).

The platform offers several practical and pedagogical advantages in the classroom. It is designed around key game elements such as challenge, fantasy and curiosity, to make learning fun and interactive (Wang, 2015). It is suitable for all ages, allowing teachers to quickly identify misconceptions and adjust instruction, while also allowing them to review student responses and support repeated practice (Wang & Tahir, 2020). In addition, this system is free and user-friendly and requires minimal technical preparation, making it easy for teachers to implement it (Shodiq & Prastowo, 2024). Students can access it on smartphones, tablets or computers without needing to create an account, which increases accessibility and participation. The platform supports the creation of quizzes, surveys and discussion questions, with adjustable response times to suit different learning needs (Plump & LaRosa, 2017). Furthermore, Kahoot! can be effectively used as a warm-up activity, helping to reduce negative feelings, such as anxiety and create a more relaxed and participatory classroom atmosphere (Ahmed et al., 2022).

2. Literature Review

In general, activities such as matching words and pictures, true or false or fill-in-the-blank, exercises that Kahoot! also incorporates, can foster emotional, behavioral and cognitive engagement. Over the years, despite the variety of approaches used, increasing attention has been given to students' perceptions and emotional responses to gamified learning. A substantial body of research on Kahoot! has focused on university and higher education students, suggesting that game-based tools are particularly excellent choices in these contexts (e.g. Mawarni et al., 2025; Plump & LaRosa, 2017). These studies consistently highlight Kahoot!'s ability to transform classroom dynamics, making learning more interactive, motivating and enjoyable. For instance, Licorish et al. (2018) investigated students' perceptions and found that it positively influenced the overall learning experience. Similar patterns have been observed in EFL university settings, where Kahoot! has been shown to even reduce classroom distractions, improve teaching quality and foster peer interaction (Truong & Dinh, 2024). Comparable findings have also been reported in secondary education (e.g. Adnyani et al., 2020; Ahmed et al., 2022).

Studies examining students' experiences with Kahoot! in primary EFL education environments remain relatively scarce. Some research in primary education has explored Kahoot! beyond language learning. For example, Çetin (2018) found that both students and their teacher perceived Kahoot! positively after classroom interviews, describing it as enjoyable, useful and effective for learning. Similarly, Rayan and Watted (2024) reported significant improvements in students' understanding and motivation in elementary science classrooms. While these studies highlight the potential in various primary education settings, research specifically targeting English as a foreign language at these young ages is limited. One study involving fourth-grade students expressed greater enthusiasm during lessons with Kahoot!. Its interactive features with the visuals and the sounds promoted active participation and peer interaction, while also increased self-confidence, particularly among shy learners who felt more comfortable experimenting with language and took risks in the game-based environment (Harahap et al., 2025). Interesting findings were also reported by Cancino and Viguera (2024), who examined the effects of Kahoot! on vocabulary acquisition and self-efficacy among 5th grade EFL students. In a quasi-experimental design, both the experimental group using Kahoot! and the control group following traditional instruction, achieved similar gains in vocabulary knowledge. That result indicates that gamified approaches can be as effective as traditional methods. However, the experimental group showed a significant increase in self-efficacy, suggesting that while learning outcomes may be equivalent, gamification can boost students' confidence and engagement. These findings underscore the value of

integrating gamification for EFL learning, ranging from simple card games to technology-based tools like Kahoot!, as it can indeed support both academic and affective aspects of learning.

However, integrating Kahoot! into the classroom can present certain challenges that EFL teachers need to address. A common limitation, noted across gamified learning contexts and age groups, involves both pedagogical design and technical readiness. As a digital platform, Kahoot! requires a stable internet connection and technical issues such as error codes or system malfunctions can disrupt learning activities (e.g. Ebadi et al., 2023; Shodiq & Prastowo, 2024). Other challenges include the limited variety of activities and stress arising from competitive elements, which may overwhelm some learners (Harahap et al., 2025). In Çetin's (2018) study, students rated the difficulty levels of the Kahoot! website, accessing reading the board, selecting answers and occasional timeouts that disconnected the application. Beginners without prior experience sometimes struggled to navigate its features effectively (Jannah, 2024). Furthermore, the game's fast pace can limit opportunities for meaningful discussion; that prevents instructors from providing detailed explanations and reduces students' ability to understand the reasoning behind answers (Pratolo & Lofti, 2021). Taken together with these challenges, its practical effectiveness relies on careful implementation and supportive classroom conditions (Truong & Dinh, 2024).

Students' perceptions of Kahoot! play a crucial role in determining its effectiveness as an instructional tool in English language learning. Luarn et al. (2023) noted that learners' responses are closely linked to motivation and sustained participation in gamified environments, with positive perceptions fostering deeper involvement. However, research focusing on primary school students, particularly in EFL contexts, remains significantly limited, especially regarding students' own experiences and opinions of Kahoot! use, highlighting a clear gap in the literature that this study aims to address.

3. Research Aim & Questions

This research responds to the identified gap by exploring students' perceptions and experiences of using Kahoot! and examining how this interactive tool influences English as a foreign language learning, classroom motivation, overall dynamics and potential challenges in primary education. More specifically, it aims to investigate what third-grade students think about using Kahoot! and whether it could be effectively implemented as a regular learning tool in the future. The study is guided by the following research questions:

RQ1: What are third graders' attitudes towards the use of the gamification tool Kahoot! in English classes?

RQ2: In what ways does the use of Kahoot! influence students' motivation towards English learning in third grade in primary school?

RQ3: What are the perceived challenges of using Kahoot! as a learning tool in third-grade EFL classrooms from the students' perspective?

4. Methodology

4.1. Research Design

This study adopted a qualitative research design to explore in depth young learners' perceptions of Kahoot! as a digital game-based learning tool. Qualitative research is inherently exploratory, focusing on understanding individuals' attitudes, motivations, behaviors and experiences within specific contexts. This approach was considered appropriate, as it enables a deeper understanding of how students interpret and describe their learning experiences in a natural classroom environment (Creswell & Creswell, 2017).

4.2. Participants

The study involved 18 third-grade students (aged 8-9 years) learning English as a foreign language in a multicultural classroom at a private elementary school in the Czech Republic. Participants were selected through convenient sampling. One teacher facilitated access to the classroom and coordinated the schedule. Students' first languages varied and they reported differing levels of

familiarity with mobile devices at home. At school, tablet use had been limited, as they were a recent addition to the classroom. Ethical approval was obtained from the school administration and informed parental consent and child assent were secured for all participants. Participation was voluntary and students could withdraw at any time without consequences. To maintain confidentiality, pseudonyms were assigned (e.g., "Participant 1" or "P1").

4.3. Instruments

To address the research aim, data were primarily collected through semi-structured interviews, which allow for a balance between guided questioning and flexibility to explore emerging ideas. The interviews were conducted in a quiet setting to minimize distractions and ensure participants felt comfortable. Each interview lasted between 9 and 15 minutes. The interview questions were reviewed by the classroom teacher to ensure clarity and age appropriateness and minor revisions were made accordingly. Child-sensitive interviewing principles were followed throughout the process, ensuring that participants felt at ease and were able to express their views freely. The researcher that conducted the interviews encouraged open-ended responses and avoided leading questions, in line with ethical guidelines for conducting research with children (Cameron, 2005).

The interview protocol consisted of two parts. The first included closed-ended questions on demographic characteristics, such as age, gender, years of learning English and familiarity with mobile devices. The second part focused on students' experiences with Kahoot!, including their likes and dislikes and the impact of the tool on their motivation and English learning. The semi-structured format also allowed for follow-up questions to gain deeper insights into students' responses.

In addition to interviews, classroom observations were conducted to provide contextual and behavioral data. These took place during the three 30-minute sessions over one week in which Kahoot! was implemented in English lessons. The researcher adopted a non-participatory role, intervening only minimally when necessary for clarification, in order to avoid disrupting the natural classroom dynamics. The Kahoot! quizzes used in the study typically consisted of 10-15 questions in formats available in the free version (multiple-choice with up to four options and true/false). Questions incorporated multimedia elements such as images, music and themed colors and were aligned with the weekly lesson topics (e.g. recycling).

Field notes were used to document students' interactions, engagement, collaboration and emotional responses during the activities. To enhance the credibility of the findings, relevant documentation, including lesson plans, quiz materials, results and teacher notes on student participation, was also collected. The combination of interviews, observations and documentation enabled data triangulation, which provided a more comprehensive understanding of students' perceptions and experiences.

4.4. Data Analysis

Data was analyzed using thematic analysis to identify patterns and themes. Interview responses were reviewed iteratively to identify meaningful segments relevant to the research questions. These segments were then grouped according to thematic similarities and assigned initial codes, which were further refined into broader themes. For example, a response such as "*I like Kahoot! for English class*" was coded as a positive attitude toward gamification use in EFL. These codes were then grouped into broader categories, such as perceived benefits, which contributed to the development of overarching themes. The analysis followed a data-driven approach informed by grounded theory principles; Braun and Clarke (2006) describe thematic analysis as a six-phase process and includes familiarizing oneself with the data, generating initial codes, searching for themes, reviewing and refining those themes in relation to both coded extracts and the entire dataset, defining and naming themes and finally producing the written report.

5. Results

5.1. Overview of Students' Experiences with Kahoot!

The findings from the first part of the interviews provided insight into students' background characteristics. Most participants (16/18) reported having access to a mobile phone at home, which they primarily used for communication with parents or peers, games for fun and videos, although usage was most of the time limited or supervised. The use of Kahoot! was relatively new for the students. It was introduced for the first time during the current academic year, following the school's recent improvement of its technological infrastructure, including the provision of tablets. During the semester, students had minimal prior exposure to Kahoot! in class. This was useful in familiarizing students with the platform and clarifying how it functions and what was expected of them. Due to their age, they were capable of handling it. Therefore, for most participants, this experience represented their first meaningful interaction with the platform. The table below (Table 1) summarizes the key categories and themes that emerged from the interviews, along with representative answers from students.

Table 1

EFL Learners' Perspectives and Opinions on the Use of Kahoot! in English Language Learning.

Category	Theme	Representative students' responses (examples)
Students' attitudes toward using Kahoot! in English learning (RQ1)	Enjoyment and positive learning experience	P2: "We can learn English and have fun." P13: "I learned new English words because of that." P5: "I remember the answers more."
Influence on motivation and classroom participation (RQ2)	Increased motivation and engagement	P16: "I like to use Kahoot! because I am not bored when learning English in the class." P8: "I was more active than if we get to do it with the notebooks." P10: "I like to be the winner of the classroom! I like this the most."
Perceived challenges of Kahoot! (RQ3)	Technical difficulties and time pressure	P7: "The game stopped one time, I wanted to win, so I didn't like this thing." P11: "It was a bit stressful to read quickly and reply fast."

5.2. Perceptions of Using Kahoot! for English Learning

Students' responses show the positive impact of Kahoot! on their learning experience. All participants (18/18) expressed encouraging attitudes toward the use of the application, indicating a unanimously favorable perception. From a descriptive statistical perspective, this could reflect a 100% positive response rate. However, to break this down, students consistently highlighted the enjoyable nature of the platform, frequently describing it as "very fun", "I like it a lot!", "exciting to play during the class", etc. According to their opinions, Kahoot! made lessons feel more dynamic and less monotonous, contrasting with traditional teaching methods that they sometimes found boring or less stimulating. One interviewee mentioned; P2: "Lets only use tablets for the class".

In terms of perceived effectiveness, the majority of participants considered Kahoot! to be very effective in supporting English language learning, while others described it as a bit helpful. Variations suggest that students' perceptions may differ depending on individual learning preferences and prior experiences with digital tools at home.

For example, one student with the least exposure to English specifically remarked that, P:18 "It's way better and I can learn English more like this than books". However, this student was also highly familiar with using digital devices, which may have facilitated the engagement.

Several participants noted that Kahoot! helped them understand concepts more deeply, not just memorize content, as reflected in comments such as "it helps me understand better, not just

remember” and “I learn new things while playing”. In follow-up questions, 12 students mentioned that they learned new English words and found it easier to expand their vocabulary through Kahoot!.

Many reported that Kahoot! helped them maintain focus during sessions; P12: “it helps me pay attention more because it is like a game”, while another student noted that P1: “it makes the English lesson more interesting and different. I feel like I want to learn English”. Students also reported that Kahoot! supported their understanding and knowledge retention. For example, P15: “I remember what I learned and the answers better when we use Kahoot!”.

The use of tablets was noted as an appealing aspect of the activity, while others appreciated the design of the questions, as reflected in the comment, “the questions are nice” which features and the content design contributed to students’ overall positive experience.

5.3. Influence on Motivation and Classroom Participation

Regarding their motivation to learn English, participants reported that unlike traditional lessons, where participation is often limited to a few confident students, Kahoot! encouraged broader involvement, allowing nearly all students to actively contribute and engage with the content. Key factors contributing to this included the game’s interactive and competitive elements. Students appreciated the competitive environment, which motivated them to pay closer attention to class materials. Several students reported knowing there is a Kahoot! session is coming that would motivate them to review material in advance, reinforcing learning and preparation.

In addition, Kahoot! appeared to support both extrinsic and intrinsic motivation. Several students were extrinsically motivated by scores and rankings. For instance, one participant stated; P9: “The only reason I want to achieve high scores is to win the podium”, P4: “I want my nickname on the scoreboard so that everyone can see and laugh at it”. These examples demonstrate the competitive features of Kahoot! can act as external incentives, encouraging students to participate actively and aim for high performance. Additional themes emerged related to this. For instance, the display of rankings was perceived positively, with one student commenting that “the first five ranking is very nice”.

At the same time, Kahoot! stimulated intrinsic motivation by making lessons enjoyable and reducing classroom monotony. P3; “The class is quite boring, but Kahoot! reduces my boredom and motivates me to learn.”. Another added, “When playing games, I stay motivated and don’t even notice when it’s time for a break” (P12).

Nearly half of the students, 8 students, reported increased self-confidence, particularly among typically shy learners. Kahoot! provided a supportive environment where mistakes were seen as part of the learning process and could be corrected instantly, encouraging learners to take risks. One student shared, “I feel more confident to answer because it’s okay if I make mistakes”, while another said, “I am not afraid to try”. Classroom observations supported these claims, showing that students who were generally reluctant to participate in speaking tasks became more active and voluntarily answered questions during Kahoot! sessions.

5.4. Perceived Challenges of Kahoot!

Although the overall findings of the study were largely positive, a small number of students reported certain challenges associated with the use of Kahoot!. As reflected in Table 1, a few participants mentioned minor technical issues, such as temporary screen freezing or delays when connecting to the platform. While these issues occurred infrequently and were quickly resolved, they caused some negative feelings during the activity.

P6: “Also another thing is that sometimes the screen stacked, not automatically because of the internet but just for a moment because of the tablet, so I felt stressed because in Kahoot! indeed it counts how fast you reply, but in the end, it did not seem a problem.”

Another drawback identified relates to the competitive nature of the platform. Although competition was generally perceived as motivating, some students reported experiencing mild stress or pressure to respond quickly and achieve high scores. This time pressure occasionally led

to rushed answers, increasing the likelihood of mistakes despite students understanding the content. In particular, 5 students who had less contact with handheld devices, expressed the need to “reply fast” or “think quickly” which may have limited deeper processing of questions for some individuals. It may, in some cases, unintentionally discourage some students.

These two reasons were the most important ones stated by participants about their concerns regarding the application. Importantly, when asked whether they would like to use Kahoot! again, all students responded with a “yes” and remained willing and even eager to use Kahoot! or using tablets with other games in future lessons.

6. Discussion

This study set out to explore how third-grade primary students experience and perceive the use of Kahoot! in EFL classroom. By addressing the research questions, the findings provide insight into the role of gamified learning in elementary education, illustrating how digital tools can transform everyday lessons into more engaging and interactive learning experiences. At the same time, the study highlights the challenges perceived by young learners, offering practical implications for teachers seeking to implement such tools effectively in the future and contributing to broader discussions on the sustainable integration of digital transformation in education systems.

To begin with, no gender differences were observed in students’ perceptions of Kahoot!, which is consistent with previous findings (e.g. Chiang, 2020). This suggests that the platform may be equally engaging across genders in primary educational settings. However, the present study indicates that technological familiarity may act as a mediating factor in students’ engagement. Learners with greater prior experience using digital devices appeared more confident and responsive during activities, highlighting the importance of considering digital competence when implementing such tools. In contrast, years of learning English did not appear to significantly influence students’ perceptions, suggesting that the motivational appeal of Kahoot! may operate independently of language proficiency at this stage.

One of the most significant findings of the study is that the use of Kahoot! increased students’ motivation and engagement, with participants reporting greater enthusiasm when learning English through Kahoot! quizzes. This finding aligns with previous research (e.g. Harahap et al., 2025; Licorish et al., 2018; Özdemir, 2025), which emphasizes Kahoot!’s capacity to enhance motivation by transforming routine language tasks into enjoyable experiences. However, this effect may be particularly pronounced among younger learners, for whom interactive and game-like elements provide immediate feedback and stimulation, which are often less present in traditional textbook-based instruction. Observational evidence from the present study further reinforces these findings, as students were seen leaning forward, raising their hands eagerly and remaining focused on tasks, indicating heightened attention and reduced boredom during the activity (e.g. Derveni & Wildová, 2025).

In addition, participants consistently described Kahoot! as a fun and highly interactive learning tool. Its features, including visuals, sound effects and scoring systems, appeared to encourage active peer collaboration, contributing to a lively and engaging classroom atmosphere. This finding supports Harahap et al. (2025), who argue that Kahoot!’s multimodal design can promote a sense of community through positive social interaction. However, the current study suggests that these effects may be particularly meaningful in primary classrooms, where students are more responsive to sensory-rich and game-like environments, which are central to sustainable educational development.

Students who were typically less confident appeared more willing to participate during Kahoot! activities, suggesting that it might have helped reduce performance anxiety. This may be explained by the informal and playful nature of the platform, where mistakes are perceived as part of the game rather than as failure. In line with Ahmed (2022), such environments can lower affective barriers, allowing learners to engage more freely and supporting both participation and knowledge development. Apart from that, many participants reported that Kahoot! supported their vocabulary development, as they were able to learn new English words and retain them more

effectively through repeated exposure and interactive practice which has been also reported in Cancino and Viguera (2024). As a result, students not only became more engaged but also demonstrated increased confidence in using English during classroom activities. This highlights the need to fully embed technology into instructional design to create sustainable, student-centered learning environments, rather than treating them as isolated technological additions.

Providing opportunities for anonymous participation can encourage wider classroom involvement by creating a sense of safety and reducing fear of making mistakes (Wang & Tahir, 2020). In Kahoot!, students are able to choose their own display names, allowing them to remain anonymous if they wish. However, in contrast, findings from the present study suggest that anonymity was not a primary concern for participants. While some students reported using nicknames for fun, most did not perceive anonymity as necessary for their participation. Instead, the competitive features of Kahoot!, such as scoring and ranking, appeared to play a more significant role in driving engagement. Students were motivated by the desire to achieve higher scores and compare their performance with peers, indicating the influence of extrinsic motivation. This finding aligns with Tao and Zou (2023), who argue that competitive game elements can act as external stimuli that enhance student participation and motivation.

A common challenge reported in many studies using Kahoot! and mobile learning more broadly is unstable internet connectivity (e.g. Adnyani et al., 2020). In this study, however, Kahoot! was used only for a short period, so connectivity issues were minimal, occurring only once or twice and quickly resolved. A few students mentioned that the screen froze for a couple of seconds, but the problem had little impact. Nevertheless, internet stability remains a potential concern. The time pressure associated with Kahoot! was also identified as a potential limitation. In the present study, some students reported that the need to respond quickly led to rushed answers, increasing the likelihood of mistakes despite understanding the content. In some cases, this may unintentionally discourage participation or shift the focus from understanding to speed. Similar concerns have been raised in previous research (e.g. Pratolo & Lofti, 2021), which highlights that the fast-paced nature of gamified tools can restrict reflection time and affect learning quality.

7. Conclusion

This study adds to the growing body of literature on gamified learning by exploring the use of Kahoot!, one of the most widely known apps, in elementary education, with a particular focus on K-12 English as a foreign language. In this sense, it contributes to the development of sustainable, technology-integrated pedagogical practices by highlighting students' perceptions of gamified digital tools, showing that learners themselves experience these tools as meaningful for learning in primary EFL classrooms. The findings indicate that Kahoot! can be an effective instructional tool for third-grade learners, improving motivation and confidence while supporting language learning in an interactive and enjoyable way. Incorporating gamification into EFL instruction allows teachers to turn standard lessons into dynamic, participatory experiences, while reducing negative emotions often associated with traditional classrooms. This highlights the value of Kahoot! as a practical tool for teachers and underscores the need for continued research on gamified learning in younger ages.

However, several limitations should be acknowledged. The relatively small and convenient sample limits the generalizability of the findings and the focus on a single educational context and age group may not fully represent broader classroom realities. In addition, conducting the study within a limited geographical scope restricts the extent to which conclusions can be applied across diverse educational systems. Furthermore, the effectiveness of Kahoot! may vary depending on subject matter, instructional design and classroom conditions, as well as frequency of use, for example the relatively short timeframe used in the study. Future research should therefore involve larger and more diverse samples across multiple countries to provide more robust and generalizable insights, particularly within a broader European context. Longitudinal studies are also recommended to examine the sustained impact of gamified learning over time in both primary and secondary education. Additionally, exploring perspectives beyond students, such as

teachers and parents, could offer a more comprehensive understanding of the role of mobile learning tools in education.

Acknowledgements: The authors would like to express their sincere gratitude to the participating students and the school for their cooperation and support throughout the study.

Artificial intelligence (AI) use disclosure: AI-assisted tools were used for language refinement and editing purposes only. All content, analysis and interpretations are the sole responsibility of the author.

Author contributions: Author 1 was responsible for the conceptualization of the study, research design, data collection, data analysis and preparation of the manuscript. Author 2 contributed to the study design, provided supervision, critically reviewed the manuscript and approved the final version.

Data availability statement: The data supporting the findings of this study are not publicly available due to privacy and ethical restrictions but are available from the corresponding author upon reasonable request.

Declaration of interest: The authors declare no competing financial or personal interests in this paper.

Ethical approval and consent: Formal ethical approval from an institutional ethics committee was not required for this study, as it was not mandatory for this type of educational research. The study was conducted in accordance with ethical research standards. Informed consent was obtained from the participating school administration and the parents or legal guardians of the participants prior to data collection. Participation was voluntary, and confidentiality and anonymity of all participants were ensured throughout the study. All data were handled in compliance with applicable data protection and ethical guidelines.

Funding: No funding was obtained for this study.

References

- Adnyani, K. E. K., Adnyana, I. W., & Murniasih, N. N. (2020). Teacher and students' perception on using Kahoot! for English learning. In N. K. A. Suwastini, I. G. A. Wesnawa, Sariyasa, G. R. Dantes, G. A. Pradnyana, & I. N. L. Jayanta (Eds.), *3rd International Conference on Innovative Research Across Disciplines (ICIRAD 2019)* (pp. 62-67). Atlantis Press.
- Ahmed, A. A. A., Sayed, B. T., Wekke, I. S., Widodo, M., Rostikawati, D., Ali, M. H., Abdul Hussein, H. A. & Azizian, M. (2022). An empirical study on the effects of using Kahoot as a game-based learning tool on EFL learners' vocabulary recall and retention. *Education Research International*, 2022(1), 9739147. <https://doi.org/10.1155/2022/9739147>
- Alzubi, A. A., Nazim, M., & Ahamad, J. (2024). Examining the effect of a collaborative learning intervention on EFL students' English learning and social interaction. *Journal of Pedagogical Research*, 8(2), 26-46. <https://doi.org/10.33902/JPR.202425541>
- Amnouchokanant, V. (2025). Reducing anxiety among EFL learners through gamification: An empirical study of instructional impact. *International Journal of Learning, Teaching and Educational Research*, 24(9), 80-104. <https://doi.org/10.26803/ijlter.24.9.5>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Cameron, H. (2005). Asking the tough questions: a guide to ethical practices in interviewing young children. *Early Child Development and Care*, 175(6), 597-610. <https://doi.org/10.1080/03004430500131387>
- Cancino, M., & Viguera, C. (2024). The impact of a gamified approach on vocabulary learning and vocabulary self-efficacy: evidence from a Chilean primary EFL school. *Revista de Lingüística y Lenguas Aplicadas*, 19, 33-43. <https://doi.org/10.4995/rlyla.2024.19932>
- Çetin, H. S. (2018). Implementation of the digital assessment tool Kahoot in elementary school. *International Technology and Education Journal*, 2(1), 9-20. <https://izlik.org/JA69LM98LR>

- Chiang, H. H. (2020). Kahoot! in an EFL reading class. *Journal of Language Teaching and Research*, 11(1), 33–44. <https://doi.org/10.17507/jltr.1101.05>
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage.
- Derveni, K., & Wildová, R. (2025). Reading activities on tablets for improving fluency and comprehension in primary education. *Gramotnost, pregramotnost a vzdělávání*, 9(3), 117–146. <https://doi.org/10.14712/25337890.5214>
- Derveni, K., & Wildová, R. (2026). Using mobile devices to foster English reading motivation in early elementary education. *Sustainable and Pedagogical Technologies*, 2(1), Article e44542. <https://doi.org/10.33902/SPT.202644542>
- Ebadi, S., Rasouli, R., & Mohamadi, M. (2023). Exploring EFL learners' perspectives on using Kahoot as a game-based student response system. *Interactive Learning Environments*, 31(4), 2338–2350. <https://doi.org/10.1080/10494820.2021.1881798>
- Fahad AlZuhair, N., & Mohammed Alkhuzaim, K. (2022). The effectiveness of a gamified electronic application in developing reading comprehension abilities among first-grade intermediate students in Saudi Arabia. *Education Research International*, 2022(1), 7677140. <https://doi.org/10.1155/2022/7677140>
- Gil-Acirón, L. Á. (2022). Benefits of gamification in second language learning. *Epos*, (38), 103–126. <https://doi.org/10.5944/epos.38.2022.33785>
- Göksün, D. O., & Gürsoy, G. (2019). Comparing success and engagement in gamified learning experiences via Kahoot and Quizizz. *Computers & Education*, 135, 15–29. <https://doi.org/10.1016/j.compedu.2019.02.015>
- Graham, K. (2015). TechMatters: Getting into Kahoot!(s): Exploring a game-based learning system to enhance student learning. *Loex Quarterly*, 42(3), 4.
- Harahap, M. K., Dewi, U., & Daulay, E. (2025). Kahoot as a Digital Game-Based Instruction for EFL Young Learners: Students' Perceptions. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*, 13(2), 4507–4517. <https://doi.org/10.24256/ideas.v13i2.7811>
- Hellberg, A.-S. (2023). The story of the hatter and the agile methods course: Gamification and game thinking in education. *Journal of Pedagogical Research*, 7(3), 19–42. <https://doi.org/10.33902/JPR.202320130>
- Huang, W. H. Y., & Soman, D. (2013). Gamification of education. *Report Series: Behavioural Economics in Action*, 29(4), 37.
- Jannah, A. R. (2024). Exploring EFL Students' Perception on Student Engagement through the Use of Kahoot! on Learning Activities. *English Focus: Journal of English Language Education*, 8(1), 24–36. <https://doi.org/10.24905/efj.v8i1.169>
- Lee, J., & Hammer, J. (2011). Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, 15(2), 146.
- Licorish, S. A., Owen, H. E., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning*, 13(1), 9. <https://doi.org/10.1186/s41039-018-0078-8>
- Luarn, P., Chen, C. C., & Chiu, Y. P. (2023). The influence of gamification elements in educational environments. *International Journal of Game-Based Learning*, 13(1), 1–12. <https://doi.org/10.4018/IJGBL.323446>
- Mawarni, N., Rahmah, C. N. M., & Maharani, P. (2025). Gamifying collaboration: Enhancing EFL reading skills through Kahoot! application. *LingPoet: Journal of Linguistics and Literary Research*, 6(3), 155–163.
- Novak, J. D. (1998). *Learning, creating and using knowledge: concept maps as facilitative tools in schools and corporations*. Lawrence Erlbaum.
- Novo, C., Zanchetta, C., Goldmann, E., & de Carvalho, C. V. (2024). The use of gamification and web-based apps for sustainability education. *Sustainability*, 16(8), 3197. <https://doi.org/10.3390/su16083197>
- Özdemir, O. (2025). Kahoot! Game-based digital learning platform: A comprehensive meta-analysis. *Journal of Computer Assisted Learning*, 41(1), e13084. <https://doi.org/10.1111/jcal.13084>
- 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(2), 151–158. <https://doi.org/10.1177/2379298116689783>
- Pratolo, B. W., & Lofti, T. M. (2021). Students' perceptions toward the use of Kahoot! online game for learning English. *Ethical Lingua: Journal of Language Teaching and Literature*, 8(1), 276–284.
- Rayan, B., & Watted, A. (2024). Enhancing education in elementary schools through gamified learning: Exploring the impact of Kahoot! on the learning process. *Education Sciences*, 14(3), 277. <https://doi.org/10.3390/educsci14030277>

- Rigzin, R. (2026). Enhancing grade two students' mathematics achievement through the use of Nearpod as a gamification tool. *Sustainable and Pedagogical Technologies*, 2(1), Article e42170. <https://doi.org/10.33902/SPT.202642170>
- Shodiq, R. A. A., & Prastowo, A. (2024). Teachers' perceptions of the Kahoot use in learning of Pancasila and citizenship education (PPKN) in public elementary school. *SITTAH: Journal of Primary Education*, 5(1), 103-113. <https://doi.org/10.30762/sittah.v5i1.2700>
- Spanellis, A., Harviainen, J. T., Fernández Galeote, D., & Thibault, M. (2024). Gamification for sustainable development. *Simulation & Gaming*, 55(3), 361-365. <https://doi.org/10.1177/10468781241249324>
- Tao, Y., & Zou, B. (2023). Students' perceptions of the use of Kahoot! in English as a foreign language classroom learning context. *Computer Assisted Language Learning*, 36(8), 1668-1687. <https://doi.org/10.1080/09588221.2021.2011323>
- Toda, A. M., Oliveira, W., Klock, A. C. T., Shi, L., Bittencourt, I. I., Gasparini, I., Isotani, S., Cristea, A. I., & Palomino, P. T. (2019). A taxonomy of game elements for gamification in educational contexts: Proposal and evaluation. In *2019 IEEE 19th International Conference on Advanced Learning Technologies (ICALT)* (pp. 84-88). IEEE. <https://doi.org/10.1109/ICALT.2019.00028>
- Truong, M. T., & Dinh, H. N. (2024). Using Kahoot! to teach English vocabulary: Benefits, drawbacks, and actual impacts from students' perspective. *Computer-Assisted Language Learning Electronic Journal*, 25(2), 201-223.
- Wang, A. I. (2015). The wear out effect of a game-based student response system. *Computers and 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>
- Zhang, S., & Hasim, Z. (2023). Gamification in EFL/ESL instruction: A systematic review of empirical research. *Frontiers in Psychology*, 13, 1030790. <https://doi.org/10.3389/fpsyg.2022.1030790>