www.ijses.net

Gamified Assessment in Colleges of Education: Challenges and Possibilities

Adjei Amaniampong
Technical University of Dresden, Germany

Muriel Mavis Danga
Offinso College of Education, Ghana

Joseph Nkyi Asamoah
Offinso College of Education, Ghana

Francis Yeboah
Offinso College of Education, Ghana

To cite this article:

Amaniampong, A., Danga, M.M., Asamoah, J.N., & Yeboah, F. (2025). Gamified assessment in colleges of education: Challenges and possibilities. *International Journal of Studies in Education and Science (IJSES), 6*(4), 370-381. https://doi.org/10.46328/ijses.5286

International Journal of Studies in Education and Science
2025, Vol. 6, No. 4, 370-381 https://doi.org/10.46328/ijses.5286

Gamified Assessment in Colleges of Education: Challenges and Possibilities

Adjei Amaniampong, Muriel Danga Mavis, Joseph Nkyi Asamoah, Francis Yeboah

Article Info

Article History

Received:
4 March 2025
Accepted:
19 August 2025

Keywords

Formative assessment
Game-based learning
Competency-based assessment
Teacher education
Preservice teachers

Abstract

Assessment practices in Ghanaian Colleges of Education (CoEs) are evolving due to a new competency-based teacher curriculum and the increasing use of educational technologies. This study examines the potential of Kahoot!, a free game-based student response system, as both a formative and summative assessment tool in three Ghanaian CoEs. Using a pragmatic approach, a sequential explanatory mixed-methods design collected (a) pre- and post-test achievement data and survey responses from 153 preservice teachers who completed eight Kahoot quizzes in Mathematics and Social Studies methods courses, and (b) focus group and interview data from 18 lecturers and 24 preservice teachers. Quantitative results indicated significant improvement in quiz scores ($t(152)=12.14$, $p < .001$) and high usability ratings ($M = 4.31/5$). Thematic analysis identified four key themes: increased engagement and motivation, real-time feedback for adaptive teaching, challenges related to infrastructure and connectivity, and the need for policy support. The findings suggest that Kahoot can enhance formative feedback and align with Ghana's competency-based assessment goals if issues of connectivity, professional development, and equity are addressed. It is therefore recommended that policymakers create an inclusive implementation guideline, provide targeted professional development for lecturers, and Institutionalize Game-Based Assessment in Teacher Education.

Introduction

Technology is revolutionizing every aspect of the education sector, from pedagogy and learning content creation and management to presentation and assessment. This impact has also been influenced by gamified teaching and evaluation in recent years (Taub et al, 2018). There is a sporadic acceptance of these game-based instructional approaches by institutions of higher learning, as noted by (Yükseltürk, Altıok, & Başer), and many universities are planning to integrate these technologies into their classroom routines (Ke, Shute, Clark, & Erlebacher, 2018). One of the applications that carries education to digital platforms is gamified student response systems. Gamified Web 2.0 tools such as Kahoot, Plickers, Quizizz, ClassDojo, Classcraft, and Socrative have become popular in teaching processes in recent years (Sercanoğlu et al, 2021). Kahoot is a game-based learning platform that has become a viable alternative for student engagement and support for university education. It requires limited effort from instructors or student training (Plump & LaRosa, 2017). It is a free online learning environment that has gained worldwide acceptance with more than 30 million users (Palma, Tobías, Prieto, León, & Ruiz, 2018; Plump & LaRosa, 2017). The idea for Kahoot! Evolved from a Norwegian Computer Science and Game Technology

professor Alf Inge Wang, and the technology is based on the master's degree research of Morten Versvik, who is the co-founder of Kahoot! and Wang's student for (Kahoot, 2018). Kahoot is a digital game-based online learning platform used in classrooms to engage students through pre-made quizzes, discussions, and surveys (Dellos, 2015; Johns, 2015). Additionally, Kahoot promotes an interactive learning platform and engages students in the learning process (Muhridza, Rosli, Sirri, & Samad, 2018). Instructors use the various features of Kahoot to help students take control of their quizzes to make them feel more empowered (Dellos, 2015).

Kahoot is also able to monitor the progress of students by diagnosing the challenges during the learning process. When preparing a Kahoot quiz, you can set optional time limits (such as 5, 10, 20, 30, 60, 90, 120 seconds) for students to answer or assign more points to students who answer correctly faster, making the game more competitive. To start a quiz in the classroom, the teacher must use her/her free account on https://create.kahoot.it and click the 'play' button to start the game in either classic (player vs. player) or team (team vs. team) mode. The screen should be projected onto a large display. Then, students connect to Kahoot on their mobile devices and enter the unique PIN code shown on the screen. Each student is given up to four options, represented by symbols: a triangle, a diamond, a circle, and a square. All students must select the relevant symbol before the pre-set time limit expires. A Kahoot account can be created through this link https://create.kahoot.it at no cost. Per the research by Ismail & Mohammad (2017) and Plump & LaRosa (2017), and cited in (Şad & Özer 2019), the following is a list of the combination of advantages attributed to Kahoot 1. Freely available for anyone to use, 2. Easy for instructors to learn and user-friendly, 3. Multiple types of Kahoot, that is, Quizzes, discussion questions, or surveys, 4. Compatible with smartphones, tablets, or ordinary computers; 5. The response time for each question is flexible and adjustable according to students' needs, 6. Simple process for students (no account registration or downloading of application), 7. Music and colors add to students' excitement and energy 8. Real-time results help instructors provide clarification when needed, 9. Instructors can download, review, and save student results. 10. Students can take quizzes multiple times.

Muhridza et al. (2018) tested the level of learning engagement among students using Kahoot; the findings suggested that Kahoot is useful in initiating and fostering students' engagement. Bawa (2018) investigated the effect of using Kahoot, and Idowu et al (2020) investigated student perception of usefulness and ease using Kahoot. The findings indicated that students learned using Kahoot and exhibited a positive perception about using Kahoot. The study revealed that students learning with Kahoot have a positive learning experience (Iwamoto, Hargis, Taitano, & Vuong, 2017). However, some research findings also reported criticisms of Kahoot. For example, Omar (2017) evaluated the effectiveness of Kahoot! activities in terms of feedback quality. As a result, it was found that performance ranking is not based on clear guidelines, which do not necessarily relate to critical thinking skills; it does not provide high-quality information to students about their learning; and it does not encourage teacher and peer dialogue around learning, as answers are shown for a few seconds, leaving insufficient time for discussion. However, in-depth analysis and observation reveal that no empirical research has investigated the factors influencing students' intention to use Kahoot for learner assessment (Sercanoğlu et al., 2021). Traditionally, educational assessment employs two main approaches: formative and summative. Formative assessment is an essential component of teaching, designed to encourage learning and consider each student's progress. In contrast, summative assessment involves quality assurance procedures and occurs at specific intervals

to report achievement (Harlen & James, 1997). While formative assessment gathers data during instruction to monitor student progress, summative assessment collects data afterward to inform grading, certification, progress evaluation, or research on effectiveness (Bloom, Hastings, and Madaus, 1971). In Ghana, formative assessment practices often overemphasize the cognitive domain, overlooking affective and psychomotor skills (Amoako, 2018). Studies in Colleges of Education highlight lecturers' limited range of formative techniques and recommend technology-enabled solutions that provide real-time feedback and learner analytics (Bordoh, 2023). The 2023 ICT Competency Framework for Teachers explicitly advocates using digital assessment tools to support learner-centered pedagogy (UNESCO, 2023). Therefore, this research aims to evaluate the effectiveness, challenges, and opportunities of using Kahoot for assessment in Ghanaian Colleges of Education within the CBTE reform, and to address the following objectives.

- Does participation in Kahoot-based quizzes significantly improve preservice teachers' assessment scores?
- How do preservice teachers perceive the usability and motivational value of Kahoot?
- What challenges and enabling factors do Lecturers and preservice teachers identify when integrating Kahoot into assessment?

Method

This study used a sequential explanatory mixed-method design, combining both quantitative and qualitative approaches. Extensive literature has identified three research approaches: these include qualitative, quantitative, and mixed methods. The qualitative approach focuses on interpretation based on the opinion of the actors in an event or phenomenon. However, the quantitative approach uses numerical data to establish relationships between variables or to test theories (Creswell, 2003). The quantitative results guided the development of interview protocols, thereby enhancing the interpretive depth. Purposive Sampling is a non-probability sampling technique where the researcher relies on their discretion to choose variables for the sample population. The entire sampling process depends on the researcher's judgment and knowledge of the context (Tashakkori & Teddlie, 1998). This sampling technique was adopted to select three public Colleges of Education (CoEs) in the Ashanti, Bono, and Central regions based on their differing resource levels. All 153 Level 200 preservice teachers in Mathematics and Social Studies methods courses participated in the quantitative phase, with 62% female and 38% male, and an average age of 21.8 years. In the qualitative phase, a maximum variation sample of 24 preservice teachers and 18 subject lecturers participated in focus groups and semi-structured interviews over six weeks. Lecturers replaced traditional end-of-topic tests with eight Kahoot quizzes (10–12 items each), co-designed to match CBTE competencies and Bloom's revised taxonomy levels.

- *Achievement Tests*: 10-item multiple-choice pre-- and post-tests (KR-20 = 0.81).
- *Kahoot Usability & Motivation Scale* (adapted from Wang & Tahir, 2020; $\alpha = .89$).
- *Focus-Group & Interview Guides* probing perceived affordances, constraints, and sustainability.

The Quantitative data was collected through paired-samples t-tests, the pre-- and post-scores were then compared, and descriptive statistics were used to summarise Likert responses. For the Qualitative data, Audio-recorded sessions were transcribed verbatim and coded thematically with NVivo 14. Inter-coder reliability ($\kappa = 0.82$)

indicated substantial agreement. Integration occurred during interpretation.

Ethical Considerations

1. *Informed Consent:* Participants were briefed about the study's purpose and voluntarily consented to participate.
2. *Confidentiality***:** All responses were anonymized, and data were securely stored.
3. *Non-Coercion:* Participation was voluntary, with no penalties for opting out.

Results

Quantitative Findings

Usability and Motivation

Mean item ratings ranged from 4.08 ("easy to join") to 4.51 ("made learning enjoyable"). Overall scale M = 4.31 (SD = 0.54), indicating strong positive perceptions. The Kahoot Usability and Motivation Scale comprised 12 five-point Likert items adapted from Wang & Tahir's validated instrument. Six items tapped *usability* (ease of access, interface clarity, reliability, speed), and six tapped *motivation* (enjoyment, engagement, competitiveness, focus, sense of accomplishment, willingness to reuse). Internal-consistency analysis produced *Cronbach's α = .89,* exceeding the .70 threshold for classroom measures and indicating that the items cohered well.

Table 1. Comparison of Pre-test and Pro-test Scores

Variable	Pre-test M (SD)	Post-test M (SD)	*t*(152)	*P*	Cohen's *d*
Overall score (/100)	63.02 (12.4)	76.18 (11.3)	12.14	< .001	0.83

Table 2. Descriptive Statistics about Usability

Dimension	Example item (abridged)	M	SD
Usability	"Kahoot was easy to join."	4.08	0.79
Usability	"Finding the quiz PIN was straightforward."	4.11	0.81
Usability	"Questions displayed clearly on my device."	4.22	0.76
Motivation	"Kahoot made learning enjoyable."	4.51	0.66
Motivation	"The leaderboard motivated me to try harder."	4.46	0.72
Motivation	"I would like to use Kahoot in other courses."	4.40	0.75

Overall scale: M = 4.31, SD = 0.54 (N = 153).

Item-level

- *Ease of entry (M = 4.08).* Although still well above the neutral midpoint (3.00), this item attracted the

lowest mean and the widest dispersion (SD = 0.79). Focus-group comments revealed that sporadic Wi-Fi drops occasionally forced students to re-enter the game PIN—a nuisance that moderated the perceived seamlessness of joining.

- *Enjoyment (M = 4.51)***.** The highest-scoring item underscored Kahoot's game-like aesthetics—music, countdown timers, colourful feedback—as potent motivators. Qualitative excerpts such as "It felt like a quiz show, not a test" exemplified the affective uplift captured quantitatively.

Sub-Scale Patterns

When items were aggregated, *Usability averaged 4.20 (SD = 0.57) and Motivation 4.42* **(SD = 0.59)**. A paired-samples *t* test confirmed that Motivation ratings were modestly but significantly higher than Usability ratings, $t(152)=4.36$, $p < .001$. The difference suggests that once students were in the game, the *experience* of play delivered even greater value than mere technical convenience.

Relationship to Achievement

Pearson correlations showed that the Motivation sub-scale correlated **r = .41** with post-test scores ($p < .001$). In contrast, Usability correlated **r = .29** ($p < .01$). Thus, students who enjoyed Kahoot and felt driven by it tended to perform better, aligning with Self-Determination Theory's assertion that intrinsic motivation fuels deeper learning. The weaker—but—still—significant link between Usability and achievement implies that smooth technology is necessary but not sufficient; it is the engagement spark that ultimately translates into higher scores.

Group-Difference Checks

- *Gender.* Independent-samples t-tests found no significant differences between male and female trainees on either subscale ($p > .10$), suggesting that Kahoot's appeal and usability cut across gender lines in this context.
- *College resource level.* A one-way ANOVA revealed a small, non-significant trend for higher Usability ratings in the best-resourced college (M = 4.29) versus the least resourced (M = 4.12). The pattern echoes qualitative concerns about patchy campus Wi-Fi rather than intrinsic design flaws.
- *Prior ICT experience.* Students reporting "high" prior experience with digital learning tools rated Usability slightly higher ($\Delta M = 0.18$) but did not differ on Motivation, indicating that the fun factor resonated even with ICT novices.

Taken together, the high means, low standard deviations, and strong reliability depict a broadly enthusiastic acceptance. Students not only found Kahoot easy to use but also felt energized, competitive, and eager to reuse the platform. These conditions favor sustained formative assessment cycles. The moderate correlations with achievement support the idea that motivational engagement is a meaningful pathway to learning gains, while the lack of large demographic disparities strengthens the case for scalability across diverse preservice teacher cohorts.

Qualitative Findings

Using thematic analysis, the qualitative data revealed four dominant themes:

1. Engagement and Motivation,
2. Feedback and Instructional Adaptability,
3. Infrastructure and Technological Challenges, and
4. Policy and Capacity-building Needs.

   These themes were drawn from focus group discussions with preservice teachers and interviews with lecturers.

Engagement and Motivation

Preservice teachers expressed overwhelmingly positive views about their classroom experience with Kahoot. They often described the tool as "fun," "competitive," and "energising." The game-like nature of the platform, characterized by timed questions, sound effects, leaderboards, and visual feedback, created an atmosphere that was notably different from traditional paper-based assessments. Many students mentioned that they looked forward to Kahoot sessions because of the instant gratification they provided. One student noted,

> *"I don't usually like quizzes, but when it is on Kahoot, I'm excited. It's like a game, and I want to beat my friends."*

This competitive yet friendly environment fostered intrinsic motivation and sustained attention. The fun factor was not just entertainment; it translated into increased participation and reduced anxiety. Students who typically hesitated to answer aloud in class felt more confident participating through the platform. Lecturers echoed these sentiments, observing increased alertness and fewer instances of classroom distraction. One lecturer commented, "I don't have to beg students to focus. The moment they know it's a Kahoot day, they are already engaged."

Feedback and Instructional Adaptability

Another theme that emerged strongly was the value of real-time feedback provided by Kahoot. Both Lecturers and students noted that the bar charts and immediate score displays allowed for instant identification of knowledge gaps. Lecturers used these visual insights to pause instruction and address misconceptions immediately. One lecturer said,

> *"After each question, I look at the chart. If many students get it wrong, I know I have to explain that concept again before moving on."*

This practice aligns with formative assessment principles, where feedback is used not just to grade, but to guide instruction. Students also benefited by reflecting on their responses in real time. Some mentioned that they remembered answers better when they saw them highlighted in colour and discussed on the spot.

The interactivity thus facilitated feedback loops between teacher and student, helping shape lessons based on learner needs.

Infrastructure and Technological Challenges

Despite the enthusiasm, the study revealed significant technological barriers. The most cited issues were:

- Inconsistent internet connectivity
- Limited access to data bundles
- Device-sharing among students
- Power outages in some colleges

One student remarked,

> *"Sometimes, the Wi-Fi goes off in the middle of a game. Then we have to restart or skip the rest."*

While most students owned smartphones, the cost of data remained a barrier, especially for extended quizzes or multiple rounds. Some students had to rely on hotspot sharing, which was not always reliable. Lecturers also expressed concern about the digital divide among students; some were digitally literate and quick to join the platform, while others struggled with the basics. These contextual limitations occasionally disrupted the smooth flow of sessions and reduced the overall effectiveness of the tool. Nevertheless, both students and Lecturers were generally willing to "endure the glitches" because of the educational value the platform offered.

Policy and Capacity-Building Needs

The final theme focused on the institutional and professional support structures required for successful implementation. Many Lecturers noted that while they were enthusiastic about using Kahoot, they had not received formal training in its pedagogical integration. Their use of the platform was largely experimental or self-taught. One lecturer admitted,

> *"We need training, not just on how to use the app, but how to write good questions that test deep thinking."*

Participants suggested that professional development workshops should be introduced to enhance question design, understand analytics, and align game-based assessments with curriculum standards.
Moreover, participants called for institutional support in the form of:

- Improved Wi-Fi infrastructure,
- Provision of digital devices for disadvantaged students,
- Integration of Kahoot and similar tools into formal ICT policies.

There was also a recommendation that the Ministry of Education or GTEC formally recognise and support the use of game-based formative assessment tools in teacher education programs. These findings imply that while

Kahoot is highly engaging and pedagogically useful, its full impact is tempered by systemic and logistical challenges. The enthusiasm among both students and faculty indicates a fertile ground for innovation, but for scalability and sustainability, institutional support, policy alignment, and infrastructural investment are essential. The findings also confirm that game-based learning platforms can be powerful tools for continuous assessment in competency-based education, but they must be adapted thoughtfully to local realities.

Discussion

Kahoot-based assessment significantly improved achievement and elicited high motivational ratings, echoing global meta-analytic trends (kahoot.com). These findings align with other research that has shown positive effects of digital assessment tools in general and Kahoot! in particular (Alsancak Sırakaya, 2017; Atilano, 2017; Barnes, 2017; Budiati, 2017; Başol, Kocadağ Ünver, & Çiğdem, 2017; Bolat, Şimşek, & Ülker, 2017; Chaiyo & Nokham, 2017; Iaremenko, 2017; Ismail & Mohammad, 2017; Küçük, 2017; Medina & Hurtado, 2017; Omar, 2017; Plump & LaRosa, 2017; Premarathne, 2017; Zengin, Bars, & Şimşek, 2017; Yılmaz, 2017; Yapıcı and Karakoyun, 2017; Walsh, 2017; Varannai, Sasvári, & Urbanovics, 2017; Ucar & Kumtepe, 2017; Taşkın & Kılıç Çakmak, 2017). An overview of the reasons for this positive impact indicates that the interactivity created by Kahoot makes quizzes more engaging, interesting, and motivating (Omar, 2017). It fosters a fun and competitive environment that promotes learning (Deloos, 2015). The competitive atmosphere fostered by Kahoot! enhances learner engagement (Barnes, 2017). It is particularly effective for formative assessment during lessons (Barnes, 2017; Zengin, Bars, & Şimşek, 2017). The qualitative studies reaffirm that the platform's ability to enable active learner participation and provide instant feedback is vital for competency-based assessment. However, the findings also reveal ongoing digital divides and capacity gaps that align with earlier studies in Ghanaian colleges of Education, citing infrastructure deficits and assessment-literacy challenges (Amoako, 2018; Amaniampong & Hartmann, 2023).

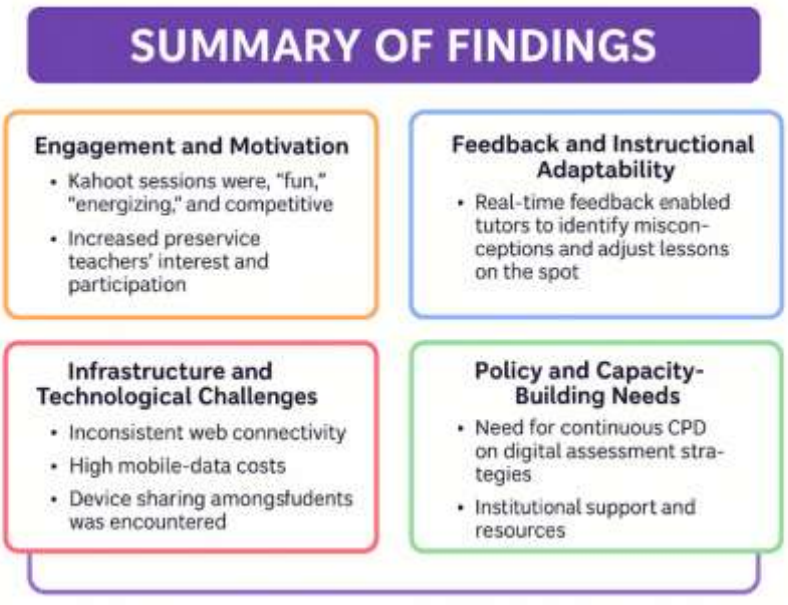

Figure 1. Summary of Findings

Table 3. Educational Implications

Stakeholder	Key Actions
Policy Makers (MoE, GTEC)	Subsidise campus-wide broadband; integrate GSRS training into national teacher-ICT standards.
College Leadership	Establish device-lending schemes; include Kahoot analytics in learning-management systems.
Lecturers	Co-design quizzes targeting higher-order competencies; blend Kahoot with reflective peer-assessment to cover affective and psychomotor domains.

Sample generalisability is confined to three CoEs and two subject areas. Future studies could adopt multi-institutional randomised controlled trials and cost-benefit analyses, and compare Kahoot with other GSRSs (e.g., Quizizz, Mentimeter).

Conclusions and Recommendations

Considering the findings of this study on implementing Kahoot-based assessment in Ghanaian Colleges of Education, the following recommendations are proposed to improve the effectiveness, fairness, and sustainability of game-based assessment practices:

Institutionalize Game-Based Assessment in Teacher Education

The Ministry of Education (MoE), Ghana Tertiary Education Commission (GTEC), and related Colleges of Education should officially integrate digital student-response tools such as Kahoot into their assessment strategies as part of the Competency-Based Teacher Education (CBTE) framework. Doing so will promote learner-centered, feedback-oriented assessment methods that align with national education reform objectives.

Provide Targeted Professional Development for Lecturers

Institutions should host ongoing professional development (PD) workshops for lecturers focused on:

- Creating high-quality, curriculum-aligned Kahoot quizzes,
- Using analytics for data-driven instruction,
- Combining digital and traditional assessment methods.

This will enhance lecturers' digital assessment skills and facilitate the meaningful integration of classroom activities.

Improve Digital Infrastructure and Access

Policy makers and college administrators must address digital inequalities by:

- Expanding reliable campus Wi-Fi coverage,

- Offering subsidized or institutional data packages,
- Establishing device-lending programs for students.

Enhanced infrastructure is crucial to ensure fair access and continuous participation in digital assessments.

Create Inclusive Implementation Guidelines

To prevent excluding students with limited digital access or skills, Colleges of Education should:

- Encourage collaborative quiz-taking (e.g., peer group entries),
- Offer asynchronous quiz options via Kahoot's "challenge" mode,
- Incorporate digital tool orientation in first-year pedagogy courses.

These inclusive approaches will help close digital gaps while maintaining student engagement.

Conduct Further Research on Long-Term Impact and Scalability

Researchers should investigate the long-term effects of game-based assessments on student performance, engagement, and assessment skills. Comparative studies involving other gamified platforms (e.g., Quizizz, Socrative, Mentimeter) can help develop scalable models and identify the most effective tools for different institutional contexts across Ghana.

Kahoot-based assessment offers a promising pathway toward agile, feedback-rich evaluation aligned with Ghana's CBTE vision. While technological and pedagogical challenges remain, strategic investments in infrastructure and professional development can unlock Kahoot's full potential to transform assessment practices in Ghanaian CoEs.

References

Akın, A., Demirci, İ., & Arslan, S. (2012). Revize edilmiş sınav kaygısı ölçeği: Geçerlik ve güvenirlik çalışması [Revised test anxiety scale: The validity and reliability study*]. Journal of Educational Sciences & Practices, 11*(21), 103–118.

Al-Hadithy, T., & Ali, S. (2018, Gamification in learning English for academic purposes: Designing assessment for language using Kahoot with UAE undergraduate law students. 110th IASTEM International Conference. Toronto, Canada. *Journal of Computer and Education Research Year, 9*(18.), 682-701.

Amoako, I. (2019). Formative assessment practices among distance education Lecturers in Ghana. African *Journal of Teacher Education*, 7(3), 1-17.

Chun, D., Kern, R., & Smith, B. (2016). Technology in language use, language teaching, and language learning. *The Modern Language Journal, 100*(S1), 64–80.

Atalay-Mazlum, A., & Balcı, A. (2018). Meslek lisesi öğretmen ve öğrencilerine göre okul: Bir metafor çalışması [The school concept according to vocational high school teachers and students: a metaphor study]. *Mehmet Akif Ersoy University Journal of Education Faculty, 47*, 1–26. https://doi.org/10.21764/maeuefd.339901

Benson, J., & El-Zahhar, N. (1994). Further refinement and validation of the revised test anxiety scale. *Structural Equation Modeling: A Multidisciplinary Journal, 1*(3), 203–221.

Bolat, Y. İ., Şimşek, Ö., & Ülker, Ü. (2017). Oyunlaştırılmış çevrimiçi sınıf yanıtlama sisteminin akademik başarıya etkisi ve sisteme yönelik görüşler [The impact of gamified online classroom response system on academic achievement and views about this system]. Abant İzzet Baysal University. *Journal of Education Faculty, 17*(4), 1741–1761.

Bordoh, A. (2023). Efficacy of formative assessment practices in social studies instruction: A case study of Holy Child College of Education. *Asian Journal of Education and Social Studies*, *49*(4), 409-419.

Budiati, B. (2017). ICT (Information and communication technology) use: Kahoot program for English students' learning booster. *Education and Language International Conference*. http://jurnal.unissula.ac.id/index.php/ELIC/article/view/1225/934

Bury, B. (2017). Testing goes mobile – Web 2.0 formative assessment tools. *ICT4LL 2017: International Conference ICT for Language Learning*.

Cornillie, F., Thorne, S. L., & Desmet, P. (2012). ReCALL special issue: Digital games for language learning: Challenges and opportunities. *ReCALL, 24*(3), 243–256.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: SAGE Publications.

Eltahir, M. E., Alsalhi, N. R., Al-Qatawneh, S., AlQudah, H. A., & Jaradat, M. (2021). The impact of game-based learning (GBL) on students' motivation, engagement, and academic performance on an Arabic language grammar course in higher education. *Education and Information Technologies, 26*(3), 3251-3278.

Ministry of Education. (2018). *National teacher education curriculum framework: Competency-based teacher education for Ghana.* Accra: MoE.

Montenegro-Rueda, A., & Shawwa, R. (2023). Inclusive participation in digital quizzes. *Journal of Educational Technology, 20*(2), 55-72.

Ramaila, S. (2024). Harnessing Kahoot! as an educational tool: A systematic review. *African Journal of Teacher Education*, *13*(2), 45-66.

Şad, S. N. & Özer, N. (2019). Using Kahoot! as a gamified formative assessment tool: A case study, *International Journal of Academic Research in Education, 5*(1), 43-57. DOI: 10.17985/ijare.645584

Sercanoğlu, Bolat & Göksu Alsancak-Sırakaya, D. (2017). Oyunlaştırılmış tersyüz sınıf modeline yönelik öğrenci görüşleri [Student views on gamified flipped classroom model]. *Ondokuz Mayis University Journal of Faculty of Education, 36*(1), 114–136.

Sercanoğlu, M., Bolat, Y. İ., & Göksu, İ. (2021). Kahoot! as a gamification tool in vocational education: More positive attitude, motivation, and less anxiety in EFL. *Journal of Computer and Education Research, 9*(18), 682-701. DOI: 10.18009/jcer.. 9224882

UNESCO. (2023). *UNESCO supports Ghana in developing its national ICT competency framework for teachers.* Paris: UNESCO.

Wang, A. I., & Tahir, R. (2020). The effect of using Kahoot! for learning – A literature review. *Computers & Education*, *149*, 103818.

WiKIT Research Consultancy. (2024). *Meta-analysis on Kahoot! and student outcomes (Press release).*

Author Information

Adjei Amaniampong
https://orcid.org/0000-0003-1025-3215
Technical University of Dresden, Germany
Lecturer, Offinso College of Education, Ghana
Department of Mathematics/ICT
Contact email: *amass18@yahoo.com*

Muriel Mavis Danga
https://orcid.org/0000-0002-7772-8687
Lecturer, Offinso College of Education
Social Studies Department
Ghana

Dr. Joseph Nkyi Asamoah
https://orcid.org/ 009-0004-3662-1885
Principal
Offinso College of Education
Ghana

Francis Yeboah
https://orcid.org/0000-0003-1387-536X
Lecturer, Offinso College of Education
Social Studies Department
Ghana