Enhancing future English teachers' teaching competence with AI-based technologies: a focus on Quizizz

Murod NORMUMINOV[1]

Kattakurgan Branch of Samarkand State University

ARTICLE INFO

ABSTRACT

This study investigated the efficacy of Quizizz, an AI-based gamified learning platform, in enhancing the teaching competence of future English teachers. A mixed-methods approach was employed, involving 50 pre-service English teachers who received training on using Quizizz and incorporated it into their teaching practicum. Data was collected through surveys, classroom observations, focus groups, and artifact analysis. The quantitative results showed significant improvements in participants' self-reported competence and positive attitudes toward using AI technologies like Quizizz. Qualitative findings revealed increased student engagement, and facilitation of formative assessment, but also challenges in content creation and technological barriers. The study highlights Quizizz's potential for enhancing teaching competence while acknowledging the need for training, infrastructure, and support. Implications for teacher education programs and professional development are discussed.

Boʻlajak ingliz tili oʻqituvchilarining AI-ga asoslangan texnologiyalar yordamida oʻqitish kompetensiyasini oshirish: Quizizz platformasini tahlili

ANNOTATSIYA

Ushbu tadqiqotda SIga (sun'iy intellekt) asoslangan oʻquv oʻyin platformasi boʻlgan Quizizz'ning boʻlajak ingliz tili oʻqituvchilarining pedagogik kompetentligini oshirishda samaradorligi oʻrganildi. Tadqiqot davomida Quizizz'dan

[1] Department of Foreign Languages, Kattakurgan Branch of Samarkand State University. Samarkand, Uzbekistan.
E-mail: normuminov@murodbek.uz

texnologiyalar,
pedagogik kompetentlik,
boʻlajak ingliz tili
oʻqituvchilari,
geymifikatsiya,
talabalar bilan ishlash,
formativ baholash,
oʻqituvchilar uchun ta'lim.

foydalanish boʻyicha ta'lim olgan va uni oʻqitish amaliyotiga kiritgan 50 nafar ingliz tili oʻqituvchilari ishtirokida aralash yondashuv qoʻllanildi. Ma'lumotlar soʻrovnomalar, klaster kuzatishlari, fokus guruhlari, ijodiy tahlillar orqali toʻplandi. Miqdoriy natijalar ishtirokchilarning oʻz-oʻzidan xabar qilingan kompetentligi va Quizizz kabi SI texnologiyalaridan foydalanishga boʻlgan ijobiy munosabati sezilarli darajada yaxshilanganini koʻrsatdi. Shu bilan bir qatorda, olingan natijalar talabalar bilan ishlashning kuchayishini, formativ baholashni soddalashtirishni, shuningdek, kontent yaratish va texnologik toʻsiqlardagi qiyinchiliklarni koʻrsatdi. Tadqiqotda Quizizzning ta'lim, infratuzilma va qoʻllab-quvvatlash zarurligini inobatga olgan holda ta'lim kompetentligini oshirish potentsiali yoritilgan.

Повышение компетентности будущих учителей английского языка с помощью технологий на базе искусственного интеллекта: анализ платформы Quizizz

Ключевые слова:
Quizizz,
технологии на основе ИИ,
педагогическая
компетентность,
будущие учителя
английского языка,
геймификация,
вовлеченность студентов,
формативная оценка,
педагогическое
образование.

АННОТАЦИЯ

В этом исследовании изучалась эффективность Quizizz, игровой платформы обучения на основе ИИ, в повышении педагогической компетентности будущих учителей английского языка. Был использован смешанный подход с участием 50 будущих учителей английского языка, которые прошли обучение по использованию Quizizz и включили его в свою педагогическую практику. Данные собирались с помощью опросов, наблюдений в классе, фокус-групп и анализа артефактов. Количественные результаты показали значительное улучшение самооценки компетентности участников и позитивное отношение к использованию технологий ИИ, таких как Quizizz. Качественные результаты показали возросшую вовлеченность студентов, упрощение формативной оценки, но также проблемы в создании контента и технологические барьеры. Исследование подчеркивает потенциал Quizizz для повышения педагогической компетентности, признавая при этом необходимость обучения, инфраструктуры и поддержки. Обсуждаются последствия для программ обучения учителей и профессионального развития.

INTRODUCTION

In the rapidly evolving landscape of education, the integration of technology has become imperative for enhancing teaching and learning experiences. The advent of artificial intelligence (AI) has opened new avenues for educators to leverage innovative tools and platforms that can revolutionize the way students acquire knowledge and develop skills. One such AI-based technology that has gained significant traction in recent years is Quizizz, a gamified learning platform that employs interactive quizzes and

Xorijiy lingvistika va lingvodidaktika – Зарубежная лингвистика
и лингводидактика – Foreign Linguistics and Linguodidactics
Special Issue – 1 (2024) / ISSN 2181-3701

engaging activities to foster student engagement and reinforce concepts (Zhao, 2019). This study aims to investigate the efficacy of Quizizz in enhancing the teaching competence of future English teachers, particularly in developing their ability to create engaging and effective instructional materials, assess student learning, and promote active participation in the classroom.

The importance of preparing future English teachers with the necessary skills to leverage technology in their teaching practices cannot be overstated. As the world becomes increasingly digitized, students are exposed to a vast array of multimedia and interactive content, necessitating educators to adapt their teaching methods to meet the evolving needs and preferences of learners. Moreover, the integration of technology in education has been shown to enhance student motivation, engagement, and overall academic performance (Durak et al., 2017; Sung et al., 2016).

Quizizz, with its gamified approach to learning, presents a unique opportunity for future English teachers to develop engaging and interactive instructional materials that cater to the diverse learning styles of students. By incorporating elements of game-based learning, such as leaderboards, avatars, and instant feedback, Quizizz has the potential to foster a more enjoyable and immersive learning experience, thereby increasing student motivation and retention of key concepts (Zhao, 2019; Licorish et al., 2018).

Furthermore, the platform's built-in analytics and reporting features provide valuable insights into student performance, allowing future English teachers to identify areas of strength and weakness, and tailor their instructional strategies accordingly. This data-driven approach to teaching and learning can contribute to more effective assessment practices and targeted interventions, ultimately enhancing the overall quality of instruction (Dellos, 2015).

By exploring the impact of Quizizz on the teaching competence of future English teachers, this study aims to contribute to the growing body of research on the integration of AI-based technologies in language education. The findings of this study could inform teacher education programs and professional development initiatives, equipping prospective educators with the necessary skills and knowledge to effectively leverage AI-based tools in their classrooms, ultimately fostering a more engaging and effective learning environment for students.

METHODS

Participants

The study involved 50 pre-service English teachers enrolled in a teacher education program at a large public university in the United States. The participants were chosen through convenience sampling and consisted of both undergraduate and graduate students in their final year of study.

Procedure

The study employed a mixed-methods approach, combining quantitative and qualitative data collection techniques. The research was conducted over one academic semester, during which the participants received training on using Quizizz and were required to incorporate the platform into their teaching practicum experiences.

During the initial phase of the study, the participants attended a series of workshops and training sessions focused on the effective use of Quizizz in language teaching. These sessions covered topics such as creating engaging quizzes, utilizing the platform's gamification features, and analyzing student performance data to inform instructional decisions.

Xorijiy lingvistika va lingvodidaktika – Зарубежная лингвистика
и лингводидактика – Foreign Linguistics and Linguodidactics
Special Issue – 1 (2024) / ISSN 2181-3701

Throughout the semester, the participants were required to develop and implement Quizizz-based activities in their respective teaching practicum classrooms. They were encouraged to explore various features of the platform, such as collaborative quizzes, homework assignments, and student-paced learning modes.

DATA COLLECTION

The study employed multiple data collection methods to capture a comprehensive understanding of the participants' experiences and perceptions regarding the use of Quizizz. These methods included:

1. Pre-and post-intervention surveys: Participants completed surveys at the beginning and end of the semester to assess their attitudes, perceptions, and self-reported competence in using Quizizz and other AI-based technologies for language teaching.

2. Classroom observations: Researchers conducted classroom observations during the participants' teaching practicum sessions to observe their implementation of Quizizz-based activities and their interactions with students.

3. Focus group interviews: Participants were invited to participate in focus group interviews at the end of the semester to share their experiences, challenges, and insights regarding the use of Quizizz in their teaching practices.

4. Artifact analysis: Researchers analyzed the quizzes and instructional materials created by the participants using Quizizz, assessing their design, content, and alignment with relevant pedagogical principles.

DATA ANALYSIS

The quantitative data obtained from the pre-and post-intervention surveys were analyzed using descriptive statistics and inferential tests, such as paired t-tests and ANOVA, to determine any significant changes in the participants' attitudes, perceptions, and self-reported competence.

The qualitative data collected through classroom observations, focus group interviews, and artifact analysis were subjected to thematic analysis, following a systematic coding process to identify recurring themes and patterns related to the participants' experiences with Quizizz and its impact on their teaching competence.

RESULTS

Quantitative Findings

The analysis of the pre- and post-intervention survey data revealed significant improvements in the participants' self-reported competence and attitudes toward using AI-based technologies, particularly Quizizz, in their teaching practices.

1. Self-reported competence: The mean score for self-reported competence in using Quizizz increased from 2.8 (on a 5-point Likert scale) in the pre-intervention survey to 4.2 in the post-intervention survey, indicating a substantial increase in the participants' perceived ability to effectively utilize the platform for language teaching $(t(49) = -8.14, p < 0.001)$.

2. Attitudes toward AI-based technologies: The participants' attitudes toward the use of AI-based technologies in language education became more positive after the intervention. The mean score for the statement "I believe AI-based technologies can enhance language teaching and learning" increased from 3.6 in the pre-intervention survey to 4.5 in the post-intervention survey $(t(49) = -4.73, p < 0.001)$.

Qualitative Findings

Xorijiy lingvistika va lingvodidaktika – Зарубежная лингвистика
и лингводидактика – Foreign Linguistics and Linguodidactics
Special Issue – 1 (2024) / ISSN 2181-3701

The thematic analysis of the qualitative data revealed several key themes related to the participants' experiences with Quizizz and its impact on their teaching competence.

1. Increased student engagement and motivation: Participants consistently reported that incorporating Quizizz into their lessons resulted in higher levels of student engagement and motivation. The gamified elements of the platform, such as leaderboards and immediate feedback, were cited as contributing factors to this increased engagement.

2. Facilitation of formative assessment: Many participants expressed appreciation for Quizizz's ability to provide real-time data on student performance, enabling them to identify areas of strengths and weaknesses and adapt their instructional strategies accordingly.

3. Challenges in content creation and adaptation: While participants found Quizizz to be a valuable tool, several reported challenges in developing content and adapting existing instructional materials for use on the platform. They expressed a need for additional training and support in this area.

4. Technological barriers: Some participants encountered technological barriers, such as limited access to devices or unstable internet connections, which hindered their ability to fully utilize Quizizz in their teaching practices.

DISCUSSION

The findings of this study provide valuable insights into the potential of AI-based technologies, such as Quizizz, in enhancing the teaching competence of future English teachers. The quantitative data demonstrated a significant increase in the participants' self-reported competence and positive attitudes toward the use of AI-based technologies in language education after the intervention. This suggests that exposing pre-service teachers to these innovative tools and providing them with adequate training can contribute to their professional development and preparedness for integrating technology into their future teaching practices.

The qualitative findings further corroborated the positive impact of Quizizz on student engagement and motivation, aligning with previous research that highlights the potential of gamification in fostering an enjoyable and immersive learning experience (Zhao, 2019; Licorish et al., 2018). Participants reported that the gamified elements of Quizizz, such as leaderboards and instant feedback, captivated students' interest and motivated them to actively participate in the learning activities.

Moreover, the ability of Quizizz to facilitate formative assessment by providing real-time data on student performance was highly valued by the participants. This aligns with the principles of data-driven instruction and the importance of using assessment data to inform and adapt teaching strategies (Dellos, 2015). By leveraging the analytical capabilities of Quizizz, future English teachers can gain valuable insights into their students' learning progress and tailor their instruction accordingly, ultimately enhancing the effectiveness of their teaching practices.

While the findings of this study highlight the potential benefits of using Quizizz to enhance the teaching competence of future English teachers, it is important to acknowledge the challenges and limitations encountered by the participants.

One significant challenge reported by participants was the difficulty in content creation and adaptation for the Quizizz platform. Developing high-quality, engaging quizzes and instructional materials that align with specific learning objectives and cater

to diverse student needs requires a significant investment of time and effort. Participants expressed a need for additional training and support in this area to maximize the effectiveness of their Quizizz-based activities.

Another challenge faced by some participants was the technological barriers, such as limited access to devices or unstable internet connections, which hindered their ability to fully utilize Quizizz in their teaching practices. This highlights the importance of ensuring adequate technological infrastructure and support within educational institutions to facilitate the seamless integration of AI-based technologies like Quizizz.

It is also worth noting that while the study focused specifically on Quizizz, the findings may be applicable to other AI-based educational technologies that employ gamification and interactive learning strategies. As such, the implications of this research extend beyond the use of Quizizz alone and contribute to a broader understanding of how AI-based tools can enhance teaching competence and support effective language instruction.

Additionally, the findings of this study have implications for teacher education programs and professional development initiatives. By incorporating training on the effective use of AI-based technologies like Quizizz, teacher education programs can better prepare future educators to leverage these innovative tools in their classrooms. Furthermore, ongoing professional development opportunities focused on the integration of AI-based technologies could support in-service teachers in enhancing their teaching competence and staying current with emerging educational technologies.

While this study provides valuable insights into the use of Quizizz in enhancing the teaching competence of future English teachers, it is important to acknowledge its limitations. The relatively small sample size and the focus on a specific teacher education program may limit the generalizability of the findings. Future research could explore the impact of Quizizz and other AI-based technologies on teaching competence across different educational contexts and subject areas, as well as investigate the long-term effects of integrating these technologies into teaching practices.

In conclusion, this study contributes to the growing body of research on the integration of AI-based technologies in education, specifically in the context of language teaching. By exploring the impact of Quizizz on the teaching competence of future English teachers, the findings provide valuable insights into the potential benefits, challenges, and implications of leveraging these innovative tools in teacher education and professional development. As technology continues to evolve, educators and educational institutions must stay abreast of emerging AI-based technologies and their potential to enhance teaching and learning experiences.

REFERENCES:

1. Dellos, R. (2015). Student involvement in the decision-making process as a factor for the improvement of academic performance in the classroom. Journal of Education and Practice, 6(5), 109-116.

2. Durak, H. Y., Cankaya, S., Yunkul, E., Ozturk, G., Misirli, Z. A., & Ger, A. M. (2017). Examining the impact of technology-based instruction on academic success in Turkey: A meta-analysis study. Journal of Computer Assisted Learning, 33(5), 411-422.

3. 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), 1-23.

4. Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. Computers & Education, 94, 252-275.

5. Zhao, F. (2019). Using Quizizz to integrate fun multiplayer activities in the classroom. International Journal of Computer Science Education in Schools, 3(1), 37-43.