Harnessing Technology for Educational Assessment: An In-Depth Analysis of Quizizz in Economics Classrooms

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ABSTRACT

Technological advancements in classroom education are evolving at a rapid pace, offering a multitude of innovative applications, particularly for assessment purposes. This study offers a comprehensive analysis of the strengths, benefits, and limitations of the Quizizz assessment application within the context of high school economics education. Adopting a qualitative research methodology with a case study design, the study collects data through interviews, observations, and documentation. The participants in this research include economics teachers and 8th-grade and 11th-grade social science students from a private school in Indonesia who have utilized Quizizz for their economics classes. To ensure the validity of the data, both source and technique triangulation are employed. The data analysis process involves three main steps: data reduction, data presentation, and conclusion drawing. The findings reveal that the Quizizz application significantly enhances student motivation and engagement in the learning process. The benefits of Quizizz include creating an enjoyable learning environment and fostering a competitive spirit among students. However, the study also identifies some challenges, such as issues with internet connectivity and the potential for academic dishonesty, which have been addressed through various measures.

Keywords: Quizizz Application, Learning Technology, Digital Learning Tools, Learning Motivation, Economics Education.

INTRODUCTION

Education plays a vital role in all aspects of human life. Through education, individuals can develop and enhance their potential, contributing to the creation of a high-quality human resource pool for nation-building (Nurpratiwi et al., 2022). To achieve national educational goals, the educational environment, particularly schools as educational institutions, holds a crucial role in creating an enjoyable and comfortable learning atmosphere for students (Fadhil & Sabic-El-Rayess, 2021). This is essential to ensuring that learning objectives are met as anticipated. The learning process requires effective communication between educators and students to determine the students' values for achieving learning objectives (Christidamayani & Kristanto, 2020). The success of the learning process can be observed through students' competency achievements, encompassing both the process and outcomes of learning (Audina, 2021). However, various factors, including the use of teacher-centered methods that fail to

engage students, can hinder this success (Audina, 2021; Munirah, 2018). The implementation of teaching and learning activities can play a crucial role in motivating students and improving their learning outcomes (Syahputra, 2021). Successful and quality learning is said to occur when all or at least a significant portion of students actively participate in the learning process, involving physical, mental, and social aspects. This is in addition to demonstrating a high enthusiasm for learning, a strong spirit of learning, and self-confidence (Utomo, 2020)

The onset of the Covid-19 pandemic in Indonesia in early 2020 brought significant changes to various aspects of life in the country, including the field of education (Muhammad & Yosefin, 2021; Mustofa et al., 2023). This change not only involved the transformation from face-to-face to online learning but also affected various aspects of the learning system, such as teaching methods, learning media, learning strategies, and evaluation models. Post-COVID-19 learning is conducted in a hybrid format, combining face-to-face and online learning. Therefore, educational institutions are required to develop relevant learning strategies. Online learning is implemented using electronic devices, internet networks, and a platform. The shift to online learning during the COVID-19 pandemic has posed challenges for educators, requiring further creativity and innovation in developing students' skills (Andi, 2021). Additionally, educators need to enhance their technological skills and provide interesting and manageable assignments for students (Muslimah, 2021).

The use of appropriate and optimally supported learning models, methods, and strategies, coupled with interactive media, can stimulate students' interest, learning activities, motivation, and learning outcomes (Rahmah, 2018; Al Febi et al., 2023). The learning process is essentially an interaction between the learning source and students to achieve predetermined goals (Pariang Sonang Siregar et al., 2020). One way to absorb information and then store it in long-term memory is when the information carries emotional strength, whether positive (positive emotion) or negative (negative emotion). Every educator hopes that the material presented to all students can be stored in long-term memory. Therefore, educators are encouraged to continually improve their professional quality by providing learning opportunities for students to actively participate in the teaching and learning process and to develop learning media as interesting and effective as possible to engage students actively in the learning process.

Technology-based education is implemented through a learning process involving the activity and creativity of both educators and students (S. S. Wulandari et al., 2022). Technological development has brought positive impacts to human life. The use of technology in education transforms teaching methods from traditional methods to better technology-based learning methods. Digital technology is one of the influences in the current global education system due to the effectiveness, efficiency, and attractiveness offered by digital technology-based learning (Kamsina, 2020). Learning can be deemed successful when students' learning motivation increases, leading to optimal learning outcomes.

Motivation drives individuals to pursue goals and find joy in their activities. In the learning process, teachers are required to possess several skills, including sufficient knowledge and understanding of learning media (Nurhidayat et al., 2021). Learning media is a crucial component in supporting the improvement of students' learning motivation to achieve learning objectives. Media is a form of communication, both printed and audiovisual, along with its tools (Dari, 2022). Media serves as an intermediary that helps teachers convey learning materials.

Various innovative efforts have been proposed by educators to create engaging learning experiences, where learning is conducted in an online format that is easily accessible anytime and anywhere (Sandi et al., 2023). To support this, a digital-based learning media is needed to enhance the motivation of learners (Rizqiyah & Arsanti, 2022). Learning media used in technology-based education are often e-learning-based. E-learning represents a form of information and communication technology that serves as a tool in the learning process (Khofifah et al., 2023). One such form of e-learning in Indonesia is Quizizz. Quizizz is a multiplayer quiz application accessible through a website, used for both interactive learning and student assignments at home. Quizizz has proven to enhance teachers' competence in managing online classes (Bafadal et al., 2021), improve teachers' skills in creating online quizzes (Rakasiwa, 2022), and provide relevant and educational learning media for students (Salsabila et al., 2020). Moreover, its use is associated with increased motivation and learning outcomes for students (Salam et al., 2022). The application has a vast collection of quizzes, facilitating easy access for students. Its user-friendly features and appealing interface contribute to enhancing students' learning motivation.

Quizizz is an educational game-based application that introduces multiplayer activities into the classroom, transforming it into an interactive and enjoyable learning environment. The application supports various aspects of learning, including content creation, practice, and quizzes with visually appealing elements. In Quizizz, participants can view their achieved rankings, motivating students to strive for satisfactory learning outcomes. The application incorporates game-like characteristics such as avatars, themes, memes, and entertaining music during the learning process. It encourages healthy competition among students, fostering motivation to learn. Through Quizizz, students can engage in exercises within the classroom using their electronic devices (Mulatsih, 2020).

Teachers can utilize Quizizz to assess students' understanding of the material effectively. Its user-friendly interface and prompt assessment results make it a suitable learning tool, fostering strong student interest and motivation to learn (Dari, 2022). Quizizz can also serve as a platform to store and analyze questions, ensuring they are valid, reliable, and exhibit appropriate difficulty levels, aiming to make the learning process more enjoyable. This aligns with the use of Quizizz as a tool for storing and analyzing questions to enhance the learning experience (Kurniasih et al., 2021). Lastly, (Aseanty et al.,

2022) emphasize the significance of self-management and competence in entrepreneurship, which can be improved through the use of Quizizz for self-assessment and skill development.

Quizizz provides a variety of features that educators can utilize as tools for assigning tasks or homework. In addition to completing assignments, students can experience a learning environment that is not overly burdensome when thinking about answers. This is because the Quizizz application offers a fresh and attractive interface. Games are inherently linked to creative, innovative, adventurous, and enjoyable elements that can cultivate positive motivation and a desire to learn among students (Sukirman, 2017; Parhan, 2019; Juliansyah & Budianto, 2021;Usman, 2020). Thus, it can concretely realize the aspirations and goals of education.

The urgency of this research lies in the pressing need to find effective teaching methods in the digital era. The reliance on technology in the teaching and learning process requires continuous adaptation and innovation from educators to ensure students remain motivated and achieve optimal learning outcomes. This research aims to evaluate and identify the effectiveness of using the Quizizz application as an interactive and enjoyable learning tool in enhancing students' motivation and learning outcomes. Thus, this research is expected to make a significant contribution to the development of better technology-based learning strategies that can be widely implemented across various educational levels in Indonesia.

METHOD

This research is a qualitative study with a case study research design. Qualitative research involves a series of actions that collect descriptive data such as verbal notes, writings, and observations of individual actions (Abdussamad, 2021). Qualitative research is inductive, where the researcher allows problems to emerge naturally, and data is left open to be understood in various ways. Meanwhile, a case study design is an approach to study, apply, or interpret a situation or event in its natural context without interference from external parties (Harmoko et al., 2022). This case study aims to conduct an in-depth investigation into the background and environmental interactions of a social unit such as an individual, group, institution, or community.

The research was conducted at SMA Al Islam Wirosari in Grobogan Regency, Central Java Province, Indonesia. Data collection utilized in-depth interviews, observations, and documentation. Research informants included an economics teacher and eight students from the X Social and XI Social classes. Respondents were randomly selected from students who had previously used Quizizz in Economics learning. Interviews were conducted directly on an individual basis using semi-structured methods. Observations took place during Quizizz learning sessions. Documentation involved student data, student learning outcomes data, and lesson planning documents. Data validity was ensured through source triangulation and technique triangulation. Data analysis steps involved data reduction, data presentation, and drawing conclusions.

The data analysis steps include three main stages: data reduction, data presentation, and conclusion drawing. Data reduction involves simplifying and focusing the collected data through selection, coding, and grouping so that only relevant and meaningful data is retained. Next, data presentation is carried out by organizing the data into a systematic and easily understandable form, such as tables, to facilitate the identification of certain patterns or trends. The final step is drawing conclusions, where the simplified and presented data is further analyzed to identify key findings, make interpretations, and make decisions or recommendations based on the evidence. This process ensures that data analysis is conducted comprehensively and systematically, making the results reliable and usable for decision-making.

RESULTS & DISCUSSION

Utilization of Quizizz Application in Improving Learning Motivation in Economics Subjects

Based on the data obtained by the researcher, the supporting facilities and infrastructure at SMA Al Islam Wirosari have provided several facilities that support digital-based learning by utilizing the Quizizz application. Although the facilities are quite complete, such as desks, chairs, whiteboards, and internet access, there are still some shortcomings, such as projectors and speakers that have not been installed in every classroom.

SMA Al Islam Wirosari allows students to use mobile devices during the learning process, but this must be in accordance with the instructions from the subject teacher. This indicates that teachers have control over the use of mobile devices during learning. Facilities are also provided to teachers and students in the form of internet access that can be used by the entire school community.

Students and teachers can be better assisted with the support of facilities and infrastructure provided by the school. For teachers, with the availability of facilities and infrastructure, the learning process can be conducted more attractively and meaningfully. The school has a full responsibility for facilities and infrastructure by managing, maintaining, and preserving the facilities and infrastructure it possesses. A school is considered of high quality if it has adequate facilities and infrastructure because having adequate facilities and infrastructure can support the learning process to achieve the desired results, thus improving the learning motivation of students.

Table 1. Data Findings from Interviews and Observations

Respondents	Interview Results	Observation Results
Teacher	"I find the Quizizz application very beneficial in the learning process. Students study with joy and excitement because when using the Quizizz application, they are challenged to compete. With the live score feature, students strive to be the best and	From the observation when the teacher used the Quizizz application as a quiz-based learning media, the learning atmosphere appeared

	achieve the highest score for each question. It makes students active and focused during the learning process." "In my opinion, the use of Quizizz can cultivate motivation for learning economics in children. This is evident when students work on evaluation questions with Quizizz; all students appear enthusiastic about participating in the learning process."	enjoyable. The students were active and cheerful, engaging in friendly competition and encouraging each other while working on questions using Quizizz. The classroom atmosphere seemed lively and noisy, but the students remained focused on their learning.
Student	"Previously, I was not familiar with Quizizz; after the implementation of Quizizz, I became aware of what Quizizz is. So, Quizizz is like an online game in the form of quizzes used for learning and is packaged very attractively." "When studying using Quizizz, I feel happy, and the learning process becomes more enjoyable, not boring." "The Quizizz application really motivates me to be enthusiastic about learning again because learning using Quizizz is more practical and different, so it's not monotonous as usual." "Learning becomes interesting; I don't get bored when answering questions, and there's also music while answering, which feels encouraging."	Students appear interested, and the learning atmosphere looks enjoyable during the Quizizz learning process.

Based on the research results derived from teacher comments, student comments, and observations, it can be concluded that the use of the Quizizz application has a positive impact on the learning process. Teacher comments indicate that the Quizizz application is very beneficial in learning. The teacher observed that students learn with joy and enthusiasm because they feel challenged to compete. The live score feature of this application encourages students to strive to be the best and achieve the highest score for each question. This makes students active and focused during the learning process.

Student comments show that they feel happy and interested in using the Quizizz application. Initially, they were not familiar with this application, but after using it, they realized that Quizizz is like an online game in the form of quizzes used for learning and is packaged very attractively. Students feel that learning using Quizizz is more enjoyable and not boring. This application also motivates students to be enthusiastic about learning again because the learning method is more practical and different, thus not monotonous as usual. Students feel that learning becomes more interesting; they do not feel bored when answering questions, and the presence of music while answering also provides encouragement.
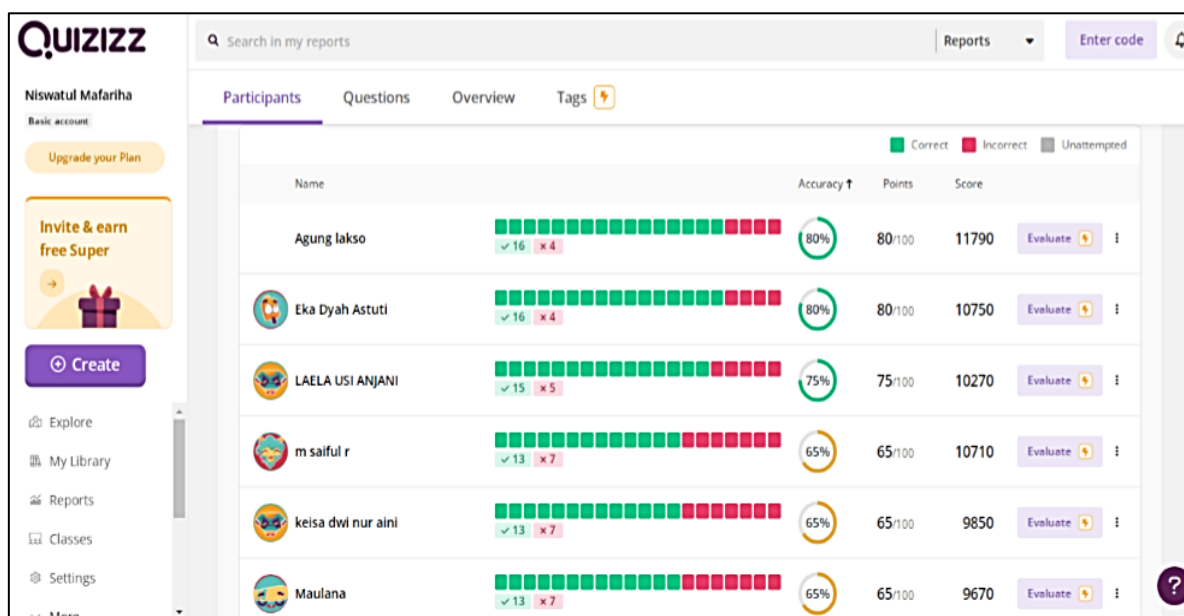
Figure 1. Display of student test results in economics subjects on Quizizz

Observation results indicate that when the teacher uses the Quizizz application as a quiz-based learning medium, the learning atmosphere becomes more enjoyable. Students appear active and cheerful, engaging in friendly competition and supporting each other while working on questions using Quizizz. The classroom atmosphere seems lively and noisy, but students remain focused on their learning. Students appear interested, and the learning atmosphere looks enjoyable during the Quizizz learning process.

Overall, the research results show that the Quizizz application not only increases student engagement in the learning process but also creates a fun, competitive, and focused learning environment. This contributes to increased student motivation and learning outcomes.

Advantages and Disadvantages of the Quizizz Application in Enhancing Learning Motivation in Economics for 11th Grade Social Studies Students at SMA AL Islam Wirosari

Based on interviews and observations, the Quizizz application offers significant advantages in the context of learning. The variety of features available on this application provides teachers with the flexibility to design engaging and diverse assignments. Features such as interactive quizzes, live score displays, and the use of appealing visual elements transform traditional evaluation concepts into a more enjoyable experience for students, enabling them to learn more interactively. Consequently, Quizizz helps motivate students to be more active in learning, creating a cheerful learning atmosphere and fostering healthy competition among them.
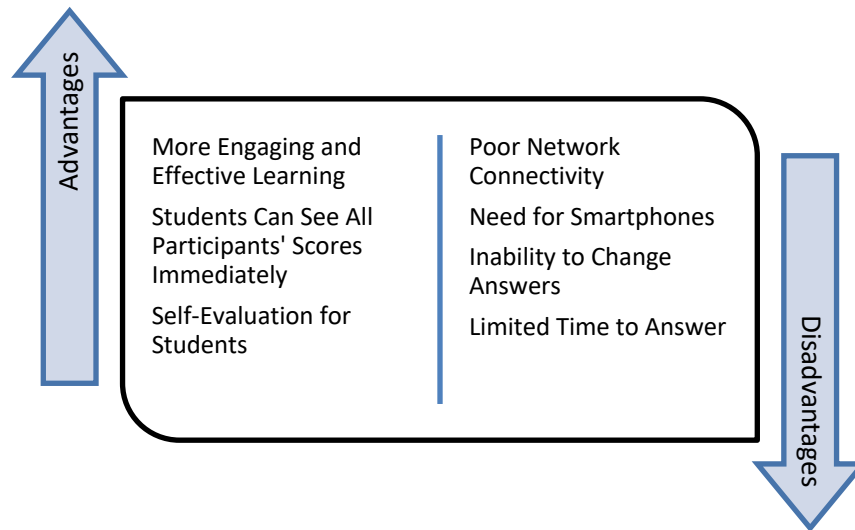
Figure 2. Advantages and Disadvantages of Quizizz

Research findings indicate several benefits in utilizing the Quizizz application, including:

1) More Engaging and Effective Learning: The features available in Quizizz make the learning process more dynamic and enjoyable. Students become more interested and motivated to follow the lessons because the methods used are not monotonous.

2) Students Can See All Participants' Scores Immediately: The live score feature allows students to see their ranking compared to their classmates, which can encourage a sense of competition and a desire to learn better.

3) Self-Evaluation for Students: Quizizz can be used as a tool for self-evaluation, where students can measure their understanding of the material taught in real-time and receive immediate feedback.

However, the Quizizz application also has some drawbacks that need to be considered as revealed by the research informants:

1) Poor Network Connectivity: An unstable internet connection can hinder access and use of the Quizizz application. This is a major challenge, especially in areas with inadequate network infrastructure.

2) Need for Smartphones: Using Quizizz requires students to have smartphones or tablets. For students who do not have these devices, participating in this activity becomes difficult.

3) Inability to Change Answers: If participants accidentally press an answer or want to correct a wrongly chosen answer, they cannot change it once submitted. This can cause frustration and affect the students' final scores.

4) Limited Time to Answer: Quizizz imposes strict time limits for answering each question, demanding full concentration from students. If students miss a question, they do not have the opportunity to repeat or correct their answers.

Despite these drawbacks, both teachers and students find these issues relatively easy to overcome. They believe that solutions such as improving internet infrastructure and providing smartphones can help address these challenges. Overall, despite the challenges that need to be faced, the benefits of using Quizizz in learning are very significant, especially in terms of increasing student motivation and engagement.

Discussion

In the field of education, the role of teachers is crucial in shaping meaningful learning experiences for students. The harmony between the chosen teaching methods, positive teacher-student interactions, and appropriate motivation is the key to creating an effective learning environment. However, it is essential to be aware that challenges such as mobile device distractions and other factors can influence student motivation. Therefore, in efforts to improve the quality of education, the role of teachers goes beyond merely delivering content; they must also act as learning facilitators capable of overcoming various obstacles and creating an inspirational atmosphere.

In the development of the learning process, teachers should consider appropriate teaching method steps aligned with the curriculum's syllabus and learning objectives. Moreover, a personal approach strategy that involves interaction between teachers and students, along with providing early motivation to students, becomes a crucial key. However, teachers also need to address factors that can hinder student learning motivation, such as mobile device distractions, by imparting an understanding of the importance of learning. With the alignment of teaching methods, positive interaction, provided motivation, and an understanding of the value of learning, teachers can create a supportive learning environment that motivates students to engage enthusiastically and earnestly in the learning process (Sulistyanto et al., 2023)

This research differs from previous research conducted by (Rahman et al., 2020), stating that the Quizizz application can enhance students' learning motivation. The innovation in the current research conducted by the researchers is the utilization of the Quizizz application at the Senior High School (SMA) education level, demonstrating the increased motivation of students in learning by utilizing the Quizizz application. Both still share the commonality of requiring supporting infrastructure for the learning process using the Quizizz application. The advantage of this research is its reliance on internet connectivity provided by the school, ensuring that the technology-based learning media process runs smoothly.

The utilization of the Quizizz application has the advantage of becoming an alternative media in the learning process. This advantage supports previous research conducted by (Latif, 2022), stating that learning media in the form of Quizizz can be utilized by educators as one of the alternatives for information and communication technology-based learning media to be maximized in achieving

learning objectives. This utilization can overcome the shortcomings of similar learning media in supporting the achievement of learning objectives. The use of this learning media can address various issues faced in the learning process.

Education is a crucial aspect of societal and individual development. The role of a teacher as a learning facilitator is essential in shaping meaningful learning experiences for students. In an era of advancing information and communication technology, the use of digital learning tools such as the Quizizz application has become an innovative approach in the teaching and learning process.

Based on the results of interviews and observations regarding the utilization of the Quizizz application in the learning process, the Quizizz application brings tangible benefits, especially in motivating students and enhancing their participation in the learning process. The Quizizz application provides a fresh and interactive touch to learning, making it more engaging and enjoyable for students. Additionally, the use of quizzes in this application encourages students to achieve the best results. The application also allows different variations of learning models compared to monotonous lecture methods. This enriches students' learning experiences and helps them understand the material better. Rewards or incentives given to students who succeed in quizzes can be an effective incentive to boost learning motivation.

This research differs from previous studies, where the innovation in this study is that the utilization of the Quizizz application not only increases learning motivation but also improves students' learning outcomes. In contrast, previous research by Khodijah et al. (2023) stated that the development of Quizizz application utilization needs to be done to improve students' learning outcomes in the learning process.

Based on the research data available, it can be seen that by utilizing the Quizizz application, students' learning motivation increases. This is evident from students' enthusiasm in answering quiz questions and tasks in the Quizizz application. By utilizing the Quizizz application, students are encouraged to learn and understand the given material with the aim of achieving the highest score. The increased learning motivation of students in utilizing the Quizizz application can be seen through the students' continued effort and competition with classmates to achieve good grades.

This study aligns with several studies that demonstrate the positive impact of using application-based learning media on student interest. Wulandari (2020) found that interactive multimedia-based learning media increases students' enthusiasm and joy. Similarly, Sumantri et al. (2020) explain that cartoon-based learning media significantly improves students' understanding of multiplication. Finally, Fauziah & Sulisworo (2022) highlight the role of technology in developing diverse and innovative learning media to enhance student interest. Together, these studies emphasize the potential of application-based learning media in increasing student interest in learning.

This research holds significant urgency in the context of modern education, especially considering the rapid development of information and communication technology. The Quizizz application, as a learning aid, offers an innovative approach that can enhance students' motivation and learning outcomes. By leveraging its interactive and engaging features, this application is capable of transforming traditional evaluation processes into more enjoyable and interactive experiences. This not only makes learning more appealing but also fosters healthy competition among students, ultimately increasing their engagement and enthusiasm in learning. This research contributes to identifying effective ways to integrate technology into education, which can be applied across various educational levels in Indonesia.

However, this research is not without its limitations. First, the dependence on a stable internet connection is a major constraint. In areas with inadequate network infrastructure, the use of the Quizizz application can be hindered, preventing all students from fully benefiting from it. Second, this research requires students to have a smartphone or tablet, which may not be available to all students. This can be a barrier to participation in application-based learning activities. Third, the inability to change answers once submitted and the strict time limits for answering questions can cause frustration for students, potentially affecting their motivation and learning outcomes.

Some suggestions and recommendations to overcome these limitations and enhance the effectiveness of using the Quizizz application in learning are as follows: (1) Improving network infrastructure: The government and schools need to collaborate to enhance internet network infrastructure, especially in areas with poor connectivity. This is crucial to ensure that all students can access the Quizizz application without obstacles. (2) Providing learning devices: Schools or educational institutions should consider providing smartphones or tablets for students who do not have them, or seek other solutions such as computer-based learning in school laboratories. (3) Teacher training and development: Teachers need adequate training on how to effectively use the Quizizz application in the learning process. They should also be equipped with strategies to overcome challenges students might face, such as providing understanding about the importance of learning and how to maximize the use of technology. (4) Combining learning methods: To prevent boredom and enhance learning effectiveness, teachers can combine the use of the Quizizz application with more conventional or non-technology-dependent teaching methods. This can provide variety in the teaching and learning process and maintain students' interest. By addressing these limitations and implementing these recommendations, it is expected that the use of the Quizizz application in the learning process can be maximized, providing greater benefits for improving students' motivation and learning outcomes.

CONCLUSION

The utilization of the Quizizz application provides benefits, especially in enhancing students' motivation and engagement in the economics learning process. The use of the Quizizz application also allows for various attractive and enjoyable learning models. Students are more enthusiastic about completing quiz questions and assignments. The utilization of the Quizizz application also fosters a competitive atmosphere among students during evaluation quizzes, indirectly promoting students' motivation to learn and understand the given material. To facilitate learning activities with the Quizizz application, it is necessary to ensure internet connectivity and the availability of a smartphone or laptop for each student. Additionally, teachers need to explain the rules and instructions that students must understand. Follow-up research is needed by expanding the subjects and objects of the study to obtain more comprehensive data and results.

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