Examining Quizziz in Learning Grammar as an Implementation of Deep Learning Approach to Improve Student Learning Outcomes SMKN 1 Mojokerto

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Abstract

Abstract: study aims to examine the use of Quizizz in grammar learning as an implementation of the deep learning approach to improve student learning outcomes at SMKN 1 Mojokerto. The study was conducted to address students' low motivation and understanding of grammar caused by conventional learning methods. By integrating digital technology through Quizizz, learning became more interactive, adaptive, and enjoyable. The research employed a descriptive qualitative approach involving 70 tenth-grade students, with data collected through observation, interviews, and documentation of pretest and posttest results. Findings revealed a significant increase in grammar achievement, with the average score improving from 74.3 to 85.9, an average gain of 11.6 points. Beyond qualitative improvements, students demonstrated higher engagement, motivation, and collaboration through activities such as Grammar Speed Challenges, Team Battle Mode, and Self-Made Quiz Projects. Reflective practices like Error Analysis Reflection and Leaderboard Motivation Day further enhanced students' metacognitive awareness and learning enthusiasm. The results indicate that the integration of deep learning principles into Quizizz not only improved grammar mastery but also fostered active participation, creativity, and a positive attitude toward language learning. Quizizz thus proves effective in making grammar learning meaningful, enjoyable, and deeply understood.

Keywords: Quizizz, deep learning approach, grammar, learning outcomes, English language learning.

Introduction

The development of digital technology has brought significant changes to the world of education. This is due to the rapid development of information and communication technology, which has become part of Indonesian culture (Fauziah, Rosnaningsih, & Azhar, 2017). The learning process, once dominated by conventional methods, is now shifting toward a more interactive and technology-based approach. The emergence of learning management systems (LMS) and various game-based learning platforms such as Kahoot!, Quizizz, and Socrative is clear evidence that technology can transform the way teachers teach and students learn. Through digital innovation, teachers not only deliver material but also create learning experiences that are fun, challenging, and

relevant to the characteristics of today's generation. In the context of English language learning, mastery of grammar is a fundamental aspect that determines students' communication skills. However, based on field observations, many students still consider grammar learning boring and difficult. Teaching methods that focus too much on theory and memorization often leave students passive and unmotivated to understand the application of grammar in real-world contexts. Therefore, learning strategies are needed that can make students more active, engaged, and motivated to learn grammar in a fun way.

One way to address this issue is through the use of interactive digital learning media. Utilizing the internet can improve the quality of education. In addition to empowering students to become more independent in seeking information for school assignments, students who frequently use the internet to search for information in educational subjects will gain broader insights, thereby improving their academic performance (Hanifah Salsabila, Irna Sari, Haibati Lathif, Puji Lestari, & Ayuning, 2020). Quizizz is a game-based learning platform widely used by teachers at various levels of education. Through its point-based quiz system and leaderboard, Quizizz fosters competitive and collaborative motivation among students. Furthermore, its engaging visuals and immediate feedback on each answer enable students to more quickly recognize their mistakes. Furthermore, developments in artificial intelligence (AI) and deep learning are beginning to be integrated into online learning systems, including platforms like Quizizz. The deep learning approach allows the system to analyze student learning patterns, adjust the difficulty level of questions, and provide more personalized feedback. Thus, the use of Quizizz based on a deep learning approach is expected to not only increase student interaction in learning but also help them understand grammar material more deeply and according to their individual abilities.

SMKN 1 Mojokerto, as a vocational school adapting to technological developments, strives to integrate digital-based learning into teaching and learning activities. In an effort to improve students' English language skills, teachers have begun experimenting with platforms like Quizizz to practice grammar. However, the effectiveness of using this media in the context of grammar learning in a vocational school environment still requires further study, particularly regarding how students respond to it and the extent to which it helps improve learning outcomes. This study began with the need to understand in depth how the use of Quizizz based on a deep learning approach can provide a different learning experience for students. It not only focuses on the final result of improved grades, but also examines the process, responses, and students' perceptions of the use of this media. Therefore, this study goes beyond simply assessing effectiveness quantitatively but also seeks to explain the meaning and learning experiences that emerge during the application of Quizizz in grammar learning.

A qualitative approach was chosen in this study because it was deemed most appropriate for exploring the subjective experiences of students and teachers. Through interviews, observations, and document analysis, including pretest and posttest results, researchers were able to obtain a more comprehensive picture of how Quizizz influences student motivation, comprehension, and learning outcomes. Thus, the research findings are expected to provide a richer understanding of the grammar learning process in the digital age. Furthermore, this research is also expected to contribute to English teachers' development of innovative and adaptive learning strategies to technological advancements. Teachers can gain insight into how platforms like Quizizz can be used beyond mere learning tools evaluation, but also as a learning medium that builds engagement and strengthens students' understanding of grammar. For students, the use of Quizizz is expected to change their perception of grammar learning, which has been considered difficult and boring.

Literature Review

From a theoretical perspective, this research enriches the study of the application of deep learning-based technology in education, particularly in language learning. Meanwhile, from a practical perspective, the results of this study can serve as a reference for other schools wishing to implement game-based digital learning to improve student learning outcomes. This condition is caused by students suboptimally absorbing or even not understanding difficult material presented by teachers. Furthermore, according to Slameto (2003) in Karina et al., learning interest has the greatest influence on learning outcomes (Karina, R. M., Syafrina, & Habibah, 2017). Using a qualitative descriptive approach, this study will describe students' experiences comprehensively and reflectively, thus yielding a deeper understanding of the effectiveness of this digital media. Based on this background, this study focuses on exploring examining quizziz in learning grammar as an implementation of deep learning approach to improve students learning outcomes at SMKN 1 Mojokerto. This study aims to describe students' experiences using Quizizz, identify factors influencing its effectiveness, and understand how this tool contributes to improving students' grammar learning outcomes. Thus, it is hoped that this research will provide a comprehensive overview of how digital innovation can be a solution to improve the quality of English learning in vocational schools.

The main problem in this study focuses on the examining quizziz in learning grammar as an implementation of deep learning approach to improve students outcomes at SMKN 1 Mojokerto. This problem arises from the need to understand students' experiences using this interactive digital tool, the factors that influence its effectiveness, and teachers' perceptions of the application of Quizizz in improving grammar learning outcomes. Through this focus, the study seeks to describe the learning experience and process in depth, rather than simply examining quantitative score improvements. This study aims to describe in detail the experiences of SMKN 1 Mojokerto students in grammar learning using Quizizz based on a deep learning approach. Furthermore, this study also aims to identify various factors contributing to the tool's effectiveness, including learning motivation, student interaction, and the technology used. Furthermore, this study also seeks to elucidate teachers' perceptions regarding the application of Quizizz in grammar learning, particularly regarding the extent to which this medium improves student learning outcomes and creates a more active and enjoyable learning environment.

Thus, this study is expected to provide a comprehensive overview of how the integration of deep learning technology through Quizizz can enrich the grammar learning process at SMKN 1 Mojokerto. Using a descriptive qualitative approach, this study not only assesses the effectiveness of learning outcomes but also explores the experiences, perceptions, and reflections of students and teachers during the learning process. The results of this study are expected to contribute significantly to the development of innovative English language learning that is more contextual, adaptive, and in line with current developments in educational technology.

Research Methods

This study uses a descriptive qualitative approach, aiming to in-depth describe the effectiveness of using Quizizz, a deep learning approach, in grammar learning at SMKN 1 Mojokerto. According to Sugiyono (2022), qualitative research is a philosophically grounded research method used to examine natural objects. The researcher acts as the key instrument, collecting data through triangulation (e.g., observation, interviews, and documentation), and analyzing the data inductively to discover meaning. This approach was chosen because the

researcher wanted to understand the meaning, experiences, and perceptions of students and teachers during the learning process, rather than simply assessing changes in numbers or statistical results. Therefore, this study focuses on the processes, contexts, and interactions that emerge in the use of this technology-based digital media.

The subjects of this study were 10th-grade students at SMKN 1 Mojokerto who were taking English lessons, specifically grammar. Subjects were selected using a purposive sampling technique, which involves deliberately selecting informants based on the consideration that they were directly involved in the implementation of Quizizz during learning activities. In addition to students, the English teacher teaching the class was also involved as an informant to provide pedagogical perspectives and reflections on the implementation of technology in the classroom. The number of participants was not focused on the number of participants, but rather on the depth of data obtained from their experiences.

According to Sugiyono (2023), data sources in research are divided into two: primary data sources obtained directly from research subjects (for example, through interviews and questionnaires) and secondary (or indirect) data sources obtained from other parties or existing documents (such as reports, books, or archives). Primary data was obtained directly through interviews, observations, and student reflections on their experiences using Quizizz in grammar learning. Secondary data, on the other hand, came from documentation, such as pretest and posttest scores, learning materials, and teacher notes during the teaching process. Although these scores were not analyzed statistically, they were still used as supporting material to describe changes in student understanding before and after media use.

According to Arikunto (2013), data collection techniques are the methods used to obtain research data, which require instruments as supporting tools. Some of the techniques he mentioned included questionnaires (written questions), interviews (direct questions), and documentation (searching for data from notes, books, or other sources such as newspapers and meeting minutes). Observations were conducted during the grammar learning process using Quizizz, with the aim of recording student activities, classroom interactions, and responses to the media used. Semi-structured interviews were conducted with students and teachers so that researchers could explore their views on the ease of use, motivation, and challenges in using the application. Documentation was used to supplement the data obtained, particularly regarding student learning outcomes and the format of questions given during the learning process.

Data analysis in this study employed the interactive analysis model by Miles and Huberman, which includes three stages: data reduction, data presentation, and conclusion drawing. In the data reduction stage, researchers selected and organized data from interviews, observations, and documentation to focus on aspects relevant to the effectiveness of grammar learning using Quizizz. Next, the reduced data was presented in descriptive narrative form to facilitate interpretation of the research findings. The final stage was conclusion drawing, which involves formulating the meaning of the analyzed data to answer the research problem formulation and objectives.

The research location was chosen at SMKN 1 Mojokerto because this school has implemented technology-based learning innovations, including the use of interactive platforms such as Quizizz. Furthermore, students at this school have characteristics suitable for this research: they are accustomed to using digital devices in their learning activities, but still face difficulties in understanding English grammar. This condition makes this school the right place to explore the effectiveness of learning media based on the deep learning approach. The research process was carried out over several weeks, starting from the planning stage, learning implementation, to data collection and analysis. During the planning stage, researchers collaborated with English teachers to determine the grammar material to be taught and to design the use of Quizizz in the learning

process learning. During the implementation phase, researchers observed and documented student activities and recorded their reactions to the media used. After the learning process, researchers conducted interviews to obtain in-depth reflections from students and teachers regarding their learning experiences using Quizizz.

Using this descriptive qualitative approach, the research focused not on numerical effectiveness calculations, but rather on a comprehensive understanding of how Quizizz can be an effective medium for improving students' grammar comprehension. The results are expected to provide insight into the extent to which deep learning technology can contribute to English language learning, as well as how digital innovations like Quizizz can be contextually adapted in vocational education settings such as SMKN 1 Mojokerto.

Results and Discussion

This research was conducted at SMKN 1 Mojokerto, involving tenth-grade students of TSBM 1 and TSBM 2 as the primary subjects. The study aimed to explore the effectiveness of digital-based learning, specifically through the Quizizz platform, in improving students' understanding of English grammar, with a particular focus on tenses and sentence structure. The research was carried out over several learning sessions within a structured period of classroom instruction. Each session was designed to gradually enhance students' grammatical knowledge through interactive, game-based learning activities that encouraged both individual participation and group collaboration.

The learning implementation began with a pretest to assess the students' baseline understanding of grammatical concepts. This pretest consisted of multiple-choice and short-answer questions focusing on verb forms, sentence patterns, and time expressions. The results from this stage were used to determine students' initial proficiency levels and to provide a reference for later comparison. After the pretest, the Quizizz-based learning sessions were introduced. The teacher and the researcher collaboratively designed the materials and activities, ensuring alignment with the existing English curriculum while maintaining student engagement through gamification features such as leaderboards, instant feedback, and time-based challenges.

During the learning process, students accessed Quizizz using their smartphones or school-provided devices, either individually or in small groups. They participated in grammar exercises that combined explanatory content, quizzes, and interactive feedback, allowing them to learn at their own pace while remaining actively involved in the classroom environment. The deep learning approach embedded in Quizizz helped promote higher-order thinking by encouraging students not only to select correct answers but also to understand the grammatical reasoning behind them. The teacher played a facilitating role—guiding discussions, clarifying misconceptions, and motivating students to reflect on their learning outcomes.

After completing several sessions, students were administered a posttest designed with the same level of difficulty, question types, and topic coverage as the pretest. This ensured that any improvement in scores could be attributed to the learning intervention rather than differences in test design. The comparison between pretest and posttest results provided quantitative data on students' progress in grammar comprehension. Additionally, to enrich the data and gain deeper insights, researchers conducted classroom observations throughout the sessions, focusing on student engagement, participation, and collaboration during the activities.

Furthermore, semi-structured interviews were conducted with a selection of students to gather qualitative information about their learning experiences using Quizizz. The interviews explored students' perceptions of the platform's usability, their motivation during the activities, and

their overall satisfaction with this innovative approach to grammar learning. Some students expressed that the competitive yet enjoyable nature of Quizizz made grammar practice more exciting and less intimidating compared to traditional methods. Others highlighted the immediate feedback feature as particularly useful for recognizing and correcting their mistakes in real time.

Through this combination of quantitative and qualitative data, the research aimed to provide a comprehensive understanding of how digital gamification tools like Quizizz can enhance grammar instruction in vocational high schools. It also sought to reveal how such tools could foster a more interactive, student-centered learning environment that aligns with the principles of 21st-century education—emphasizing engagement, collaboration, and autonomous learning.

Research Results

Based on the results of the pretest and posttest administered to 70 students, the findings clearly indicated that all participants experienced a notable improvement in their grammar scores, although the extent of improvement varied among individuals. The highest pretest score was 85 and the lowest was 65, while the highest posttest score reached 99 and the lowest increased to 71. The average pretest score was approximately 74.3, whereas the average posttest score improved significantly to 85.9. This increase of around 11.6 points represents a meaningful improvement in students' grammatical competence. Such results suggest that the implementation of the Quizizz-based deep learning approach contributed positively not only to cognitive achievement but also to students' motivation, participation, and engagement in the learning process.

The improvement in grammar mastery could be attributed to the interactive and student-centered learning model fostered by the use of Quizizz. Through this platform, students were not passive recipients of information but active participants who continuously engaged in answering questions, receiving instant feedback, and learning from their mistakes. The combination of gamification and deep learning created a dynamic classroom environment that encouraged critical thinking, problem-solving, and collaboration. These pedagogical elements were essential in transforming the traditional grammar learning process—which is often considered monotonous and mechanical—into an enjoyable and meaningful experience that stimulated both intellectual and emotional engagement.

During classroom observations, the researcher documented a variety of unique and interactive learning activities that played a vital role in enhancing students' comprehension and enthusiasm. One of the most engaging classroom moments occurred during the Grammar Speed Challenge, a time-based competition where students were required to answer grammar questions as quickly and accurately as possible using Quizizz's timer feature. This activity not only trained students to think critically under pressure but also strengthened their mastery of grammatical forms and sentence patterns. The element of competition sparked excitement and friendly rivalry, turning grammar practice into a lively and enjoyable experience. Students frequently cheered for their peers, celebrated correct answers, and eagerly awaited the next challenge, illustrating a classroom culture filled with enthusiasm and positivity.

Another highly impactful activity was the Team Battle Mode, where students were divided into small groups and competed collaboratively against other teams. This setup promoted peer learning, as students discussed possible answers before submitting them and justified their grammatical reasoning through group dialogue. Such peer-to-peer interactions fostered deeper conceptual understanding because students were not only solving grammar problems but also explaining grammatical rules to others—a process that reinforced learning through social interaction. The cooperative nature of this activity helped build communication skills, teamwork,

and mutual respect, reflecting the essence of collaborative learning that supports the holistic development of learners.

In one of the later sessions, students were given the opportunity to become content creators through a project called the Self-Made Quiz Project. In this activity, students designed their own grammar quizzes using Quizizz, selecting question types, constructing sentences, and identifying the correct grammatical forms. This creative task shifted the learning dynamic from teacher-centered to learner-driven, where students took ownership of their learning. By crafting questions themselves, they were unconsciously revising grammar rules, analyzing sentence structures, and reinforcing their prior knowledge. Moreover, this activity fostered creativity, autonomy, and responsibility, key attributes that align with the principles of deep learning, where understanding is built through active knowledge construction rather than rote memorization.

In addition to these interactive and creative exercises, reflective activities played a crucial role in consolidating students' understanding. After every game session, both teachers and students engaged in a structured reflection called the Error Analysis Reflection. In this activity, incorrect answers displayed by Quizizz were collectively reviewed and discussed to identify the grammatical principles behind the errors. This reflective process allowed students to recognize patterns in their mistakes and develop metacognitive awareness of their learning progress. It encouraged them to think beyond the correct answer by asking why an answer was right or wrong, thus promoting a deeper and more analytical form of grammar learning. Through this practice, students gradually developed a habit of self-assessment and critical evaluation, which are fundamental components of deep learning.

At the end of each week, the teacher organized a special session known as Leaderboard Motivation Day to acknowledge and celebrate students' efforts. Unlike conventional grading systems that focus solely on academic scores, this leaderboard emphasized both achievement and improvement. Recognition was given not only to top scorers but also to those who demonstrated consistent progress and perseverance. This approach fostered a sense of achievement and inclusivity, motivating students of all proficiency levels to keep striving for improvement. The celebration of effort, rather than mere results, cultivated intrinsic motivation and built a supportive classroom culture centered on growth and learning.

Overall, the combination of these activities—competitive, collaborative, creative, and reflective—successfully transformed grammar learning into a more dynamic, student-centered, and enjoyable process. The findings revealed that students became more confident, enthusiastic, and participative during lessons. They began to perceive grammar not as an abstract and rigid subject but as a skill that could be learned through interactive exploration and practice. Many students expressed that the use of Quizizz made them look forward to grammar lessons, as it offered instant feedback and a sense of accomplishment through real-time progress tracking.

In summary, the integration of the Quizizz platform with a deep learning approach proved to be effective in enhancing both students' academic performance and their attitudes toward learning English grammar. The study demonstrated that technology-based learning environments, when designed with pedagogical intentionality, can nurture cognitive, social, and emotional dimensions of learning simultaneously. This research thus highlights the potential of digital gamification tools in supporting modern educational practices that emphasize active learning, collaboration, and sustained student engagement.

Research Discussion

The findings of this study indicate that the use of Quizizz, based on a deep learning approach, is effective in improving grammar learning outcomes for students at SMKN 1 Mojokerto.

In the context of this study, the increase in grades from an average of 74.3 to 85.9 not only reflects the media's success in helping students understand grammar but also emphasizes the importance of experiential learning and active engagement. The deep learning approach implemented through Quizizz allows students to actively participate, think critically, and independently correct errors. Automatic feedback plays a crucial role in fostering a deeper understanding of frequently misunderstood grammar patterns. With the adaptive learning system, students who frequently make errors are presented with questions with a customized level of difficulty, making the learning process more personalized and effective.

Furthermore, this study reinforces Vygotsky's social constructivism theory, which emphasizes that learning occurs through social interaction and meaningful experiences. In learning using Quizizz, students not only compete individually but also discuss their correct answers with each other after the game ends. These discussions serve as reflective moments that deepen their grammar understanding. Thus, the learning process focuses not only on outcomes but also on the collaborative dynamics formed during the activity. Although the research results show positive improvements, several obstacles were also encountered during the learning process. The main obstacles were internet network disruptions and device limitations for some students, which temporarily hampered the game. However, teachers and students successfully overcame these obstacles by taking turns learning or using the school's internet connection. These obstacles, in fact, became a crucial part of the learning process, demonstrating students' adaptation to technology in the context of vocational education.

Overall, the results of this study demonstrate that the integration of deep learning technology through Quizizz can improve students' grammar learning outcomes, both in terms of conceptual understanding and learning motivation. The significant increase in posttest scores compared to the pretest provides empirical support for the qualitative findings from observations and interviews. In other words, although this study used a qualitative approach, the quantitative data obtained still serves as supporting evidence, strengthening the description of the media's effectiveness. These findings have practical implications for the development of English language learning in vocational schools. Teachers can utilize Quizizz as an alternative, more dynamic grammar learning method that aligns with the characteristics of 21st-century students. The implementation of a deep learning approach also encourages teachers to focus not only on delivering material but also on fostering critical thinking, reflection, and independent learning in students. Thus, learning grammar, previously considered difficult, can be transformed into a fun, meaningful learning experience that is oriented toward improving learning outcomes.

Conclusion

Based on the results of this study, it can be concluded that the implementation of the Quizizz-based deep learning approach has a positive and significant impact on grammar learning at SMKN 1 Mojokerto. The combination of interactive technology and deep learning principles improved both students' grammar mastery and learning attitudes. Quantitative data showed an average score increase of 11.6 points, from 74.3 to 85.9, while qualitative observations revealed higher motivation, engagement, and reflective thinking. Students actively participated in innovative classroom activities such as Grammar Speed Challenges, Team Battle Mode, and Self-Made Quiz Projects, which promoted critical thinking, collaboration, and creativity. Reflective activities like Error Analysis Reflection and Leaderboard Motivation Day encouraged metacognitive awareness and sustained learning enthusiasm. Teachers also benefited from the platform's real-time feedback and adaptive learning system, which helped them tailor instruction to students' needs. Overall, the

integration of Quizizz with deep learning principles transformed grammar learning into an active, enjoyable, and meaningful process. It shifted students' perception of grammar from a difficult subject into an engaging experience that fosters understanding, confidence, and long-term learning motivation.

From a teacher perspective, the implementation of Quizizz helps create a more lively and participatory learning environment. Teachers can easily monitor students' progress in real time and identify grammar areas that need further strengthening. Through the collaboration between technology and pedagogy, grammar learning, previously considered difficult and monotonous, becomes a more contextual and meaningful process. Therefore, the effectiveness of Quizizz in this study is measured not only by improved grades but also by increased student engagement, motivation, and learning experience. Furthermore, this study demonstrates that integrating a deep learning approach into technology-based learning offers significant opportunities to improve the quality of education in vocational schools. This approach helps create a learning system that adapts to individual abilities, facilitates self-reflection, and fosters independent learning. Students learn not only to memorize grammar rules but also to understand the patterns and meanings of their use in real language contexts. Therefore, the results of this study reinforce the belief that technological innovation can be an effective tool in creating language learning that is relevant to the needs of the times.

Bibliography

Arikunto, S. (2013). Jakarta: Rineka Cipta. In *Research Procedures: A Practical Approach*. Jakarta: Rineka Cipta.

Fauziah, A., Rosnaningsih, A., & Azhar, S. (2017). The Relationship between Learning Motivation and Learning Interest of Fourth-Grade Students at Poris Gaga 05 Elementary School, Tangerang City. *JPSD Journal (Journal of Elementary School Education)*, *4*(1), 47–53. https://doi.org/https://doi.org/10.26555/jpsd.v4i1.a9594.

Hanifah Salsabila, U., Irna Sari, L., Haibati Lathif, K., Puji Lestari, A., & Ayuning, A. (2020). (2020). The Role of Technology in Learning During the Covid-19 Pandemic. *Al-Mutharahah: Journal of Research and Socio-Religious Studies*, *17*(2), 188–198. https://doi.org/https://doi.org/10.46781/al-mutharahah.v17i2.138.

Karina, R. M., Syafrina, A., & Habibah, S. (2017). The Relationship between Learning Interest and Student Learning Outcomes in Science Subjects in Grade V of SD Negeri Garot Geuceu, Aceh Besar. *Scientific Journal of Elementary School Teacher Education, Faculty of Teacher Training and Education, Syiah Kuala University*, *2*(1), 61–77.

Sugiyono. (2022). *Quantitative Research Methods*. Bandung: Alfabeta.

Sugiyono. (2023). *Quantitative, Qualitative, and R&D Research Methods*. Bandung: Alfabeta.