

Improving Students' Engagement in Listening Activities through Edpuzzle

Sari Setiawati

Universitas Tanjungpura

E-mail: sarisetiawati25199@gmail.com

Yohanes Gatot Sutapa Yuliana

Universitas Tanjungpura

E-mail: yohanes.gatot.sutapa.y@fkip.untan.ac.id

Ikhsanudin

Universitas Tanjungpura

E-mail: ikhsanudin@fkip.untan.ac.id

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Abstract

Students' engagement is crucial for the success of listening activities, especially at the junior high school level. This study aimed to enhance students' engagement in English listening activities using EDpuzzle, focusing on eighth-grade A students at SMP Islam Al-Azhar 17 Pontianak. Conducted over two cycles with 20 participants, the study addressed issues like distractions, disengagement, difficulty understanding audio, and feelings of frustration. The research employed a Classroom Action Research (CAR) design, involving two cycles of planning, action, observation, and reflection. Instruments used included observation checklists, tests, and field notes. Qualitative analysis showed a marked increase in engagement during the second cycle, after introducing EDpuzzle Station Challenge activities. EDpuzzle's interactive features—visually engaging content, embedded questions, and the option to rewatch videos—made the listening experience more accessible and enjoyable. This boosted cognitive, behavioral, and emotional engagement, leading to better attendance, active participation, and fewer disruptions. Descriptive statistics revealed notable improvements, with 86.67% of students showing higher emotional engagement, 78.33% displaying increased cognitive engagement, and 86.67% showing improved behavioral engagement. Additionally, 85% of students scored above the success threshold in listening comprehension tests, particularly in identifying degrees of comparison and summarizing video content. In conclusion, EDpuzzle enhanced students' engagement by creating a more interactive and enjoyable learning environment.

Keywords: Listening, engagement, edpuzzle

INTRODUCTION

Engagement in English listening activities is a fundamental aspect that plays a crucial role in achieving successful learning outcomes within the classroom setting. When students are actively involved in their learning processes, their levels of attentiveness, focus, and responsiveness are enhanced, which are essential qualities for developing proficient listening abilities necessary for communication in the English language. Observations conducted among eighth-grade A students at SMP Islam Al-Azhar 17 Pontianak revealed a troubling and pervasive lack of engagement during listening activities, highlighting an issue that demands immediate attention. Many students struggle to comprehend audio content, primarily because they tend to concentrate on deciphering individual words rather than grasping the overall message being conveyed, which ultimately hinders their ability to understand and engage with the material fully. The frequent requests for audio repetition, adjustments to volume levels, and various disruptions occurring within the classroom further exacerbate this issue, indicating a barrier to effective listening comprehension. These challenges underscore the urgent need for a more compelling and engaging strategy to capture students' interest and enhance their listening skills (Sarbunan, 2024).

To address these multifaceted challenges faced by students in the listening activities, the researcher has decided to implement EDpuzzle, an innovative interactive video-based learning platform specifically designed to boost students' engagement in English listening activities. EDpuzzle introduces dynamic interactive elements into video content, thereby providing a more engaging and stimulating alternative to traditional audio-based instructional methods that may not adequately capture the attention of students. Despite the classroom at SMP Islam Al-Azhar 17 Pontianak being well-equipped with modern amenities such as a whiteboard, air conditioning, and reliable internet access, students continue to exhibit signs of boredom and disruptive behavior during conventional listening exercises. This situation strongly indicates that a more stimulating and interactive approach is required to maintain students' interest and enhance their overall level of engagement during listening activities.

Extensive research within the field of educational technology demonstrates the numerous benefits associated with incorporating EDpuzzle into listening instruction. For instance, according to Thanh (2022), the utilization of EDpuzzle fosters a more interactive and immersive learning experience for students, allowing them to engage more deeply with the material. Additionally, Mawaddah et al. (2022) observe that features such as the "rewatch" option and the automated feedback provided by EDpuzzle substantially increase students' motivation to participate and engage actively in the learning process. Furthermore, Egilistiani & Prayuana (2021) highlight that EDpuzzle offers teachers the ability to tailor video content to meet specific educational objectives, thereby promoting better student engagement and understanding of the material. This growing body of research indicates that the EDpuzzle has the potential to improve students' behavioral, cognitive, and emotional engagement during listening activities, ultimately leading to improved learning outcomes.

The research is designed to explore several critical questions that are essential to understanding the impact of EDpuzzle on student engagement and listening comprehension. The primary aim of the study is to determine how the integration of EDpuzzle influences behavioral engagement among eighth-grade A students at SMP Islam Al-Azhar 17 Pontianak. This study addresses specific challenges with students' listening comprehension, particularly their difficulty in identifying the main ideas and

details from spoken texts. These issues often result in misunderstandings of the overall message, as observed in their responses to listening exercises. Additionally, students tend to struggle with retaining auditory information, leading to incomplete or incorrect answers during listening tasks. By integrating EDpuzzle, the research investigates how the tool improves cognitive engagement by enhancing students' ability to focus on crucial information, organize ideas, and apply critical thinking while interacting with listening materials. Furthermore, it explores the impact on emotional engagement by assessing how EDpuzzle's interactive features foster a more enjoyable and less stressful learning environment for students. The study also compares these findings against established indicators of listening skills, such as the ability to comprehend spoken vocabulary, infer meaning from context, and recognize speakers' intentions. Ultimately, this research seeks to provide a comprehensive understanding of how EDpuzzle addresses the identified listening difficulties while contributing to overall student engagement and listening proficiency.

The specific objectives of this research focus on improving students' engagement in English listening activities through the innovative use of EDpuzzle, specifically targeting the dimensions of behavioral, cognitive, and emotional engagement among eighth-grade A students. Additionally, the study aims to measure any observable improvements in listening comprehension that may result from the effective use of EDpuzzle as a learning tool (Thao, 2024). By addressing these goals, the research seeks to foster a more holistic understanding of how technology can influence various aspects of student engagement, such as active participation, critical thinking, and emotional connection to learning tasks. Moreover, the study aims to refine existing teaching strategies by providing educators with actionable insights on leveraging interactive platforms like EDpuzzle to cater to the diverse needs of learners, promoting inclusivity and personalized learning experiences.

Beyond its immediate scope, this research contributes to the growing body of knowledge on the integration of technology in education, particularly in enhancing language skills through innovative tools. It also underscores the importance of aligning pedagogical objectives with the capabilities of digital platforms, ensuring that their use directly supports the desired learning outcomes. By highlighting the potential of EDpuzzle to facilitate active learning, critical thinking, and tailored feedback, the study demonstrates how technology can bridge the gap between traditional teaching methods and modern educational demands. Furthermore, the findings can serve as a foundation for designing future studies that explore the long-term impact of tools like EDpuzzle on students' listening proficiency, engagement, and overall academic performance, while also examining how such tools can be adapted to other language skills like speaking, reading, and writing.

In addition to its focus on individual skills, the research encourages a broader exploration of how interactive technologies can foster collaborative learning environments, where students work together to solve problems and enhance comprehension. This study also highlights the importance of professional development for educators, emphasizing how training in the effective use of digital platforms can amplify their ability to create meaningful and engaging lessons. By offering a framework for assessing the effectiveness of such tools across different educational levels, cultural settings, and disciplines, this study not only validates the significance of EDpuzzle but also inspires continued exploration of interactive educational technologies. Ultimately, it

advocates for a holistic approach to integrating technology in education, ensuring that it complements traditional pedagogical methods and transforms classrooms into dynamic, student-centered learning spaces.

This study is anticipated to yield several significant benefits for various stakeholders in the educational community by addressing specific gaps in existing research and practice. Students are expected to improve their behavioral, cognitive, and emotional engagement in English listening activities through the implementation of EDpuzzle. This improvement is anticipated to lead to enhanced listening skills, particularly in identifying main ideas, understanding detailed information, and inferring meaning from context. Such outcomes may also foster a greater overall appreciation for English as a subject. From a research perspective, this study fills an essential gap in the exploration of how interactive digital tools like EDpuzzle specifically enhance listening comprehension and engagement in middle school students. This area has received limited focus in prior studies. While much of the existing research emphasizes the general benefits of educational technology, this study contributes novel insights by examining the direct relationship between EDpuzzle's features—such as interactive questions and instant feedback—and the three dimensions of student engagement: behavioral, cognitive, and emotional.

For teachers, the findings are expected to highlight innovative instructional strategies, providing practical examples of how EDpuzzle can be integrated into lesson plans to foster professional growth, creativity, and increased student participation. By demonstrating specific approaches to using EDpuzzle's interactive features, such as embedded questions, feedback tools, and video-based tasks, this research can serve as a valuable resource for educators seeking to enhance their pedagogical practices. Furthermore, the study situates itself within the broader field of technology-assisted language learning (TALL), focusing specifically on listening comprehension—a crucial yet often challenging skill for English learners. This emphasis on listening aligns with the growing need for effective tools that support active engagement and deeper understanding of auditory materials in language education.

By addressing the research gap in the application of EDpuzzle to improve engagement and listening skills, this study provides practical implications for educators while contributing to academic discourse on the role of educational technology in language learning. Additionally, it underscores the importance of aligning technological tools with pedagogical goals, demonstrating how interactive platforms can bridge the gap between theoretical concepts and real-world classroom practices. Beyond its immediate context, the research lays a foundation for future studies aiming to refine and expand the application of such tools across different subjects, educational levels, and cultural settings (Kurniawan & Anwar, 2024). This includes exploring the long-term effects of EDpuzzle on students' listening proficiency, evaluating its adaptability to other skills like speaking or writing, and investigating its integration with other digital tools to create comprehensive learning ecosystems. Ultimately, this study highlights the transformative potential of interactive platforms like EDpuzzle in enhancing student engagement and learning outcomes. By fostering collaboration among educators, researchers, and policymakers, further exploration and refinement of these tools can pave the way for more effective, inclusive, and innovative approaches to language education.

METHOD

This research employed Classroom Action Research (CAR) based on the model by Kemmis and Taggart (1992), which involves four phases: planning, acting, observing, and reflecting. The study was conducted in two cycles, addressing engagement and listening comprehension challenges among eighth-grade A students at SMP Islam Al-Azhar 17 Pontianak. The planning phase began by identifying students' difficulties with listening comprehension and low engagement levels through classroom observations and interviews. A lesson plan was then designed in alignment with the Merdeka Curriculum, focusing on degree comparisons and superlatives. Instruments such as observation checklists, field notes, and comprehension tests were prepared, and necessary tools, including smartphones and laptops, were arranged to support the intervention. A schedule of activities was also created to ensure consistency with the research objectives.

During the acting phase, lessons were carried out using EDpuzzle, beginning with a pre-activity segment where students were introduced to the lesson objectives and guided on how to use EDpuzzle's interactive features. This phase also included an overview of the platform's functionality, ensuring that students were familiar with navigating videos, answering embedded questions, and utilizing available tools effectively. In the main activity, the lesson content was presented through carefully selected EDpuzzle videos with embedded questions designed to enhance comprehension and critical thinking (Fakhruddin et al., 2024). This interactive approach allowed students to engage actively with the material, encouraging them to reflect on the content, make connections, and self-assess their understanding. Additionally, teachers monitored students' progress in real-time, providing immediate feedback and support to address challenges.

The post-activity segment involved concluding the lesson with a comprehensive discussion to reinforce key takeaways, collecting student feedback to understand their experiences and perceptions, and conducting a structured reflection session to evaluate the learning process. This reflection included both teacher-led and peer discussions, enabling students to share insights and clarify misunderstandings collaboratively. These phases were essential not only in facilitating active participation but also in fostering a deeper understanding of the lesson material and the effective use of EDpuzzle as a learning tool.

The observing phase involved recording students' engagement levels using observation checklists and field notes. These tools documented students' attentiveness, participation, and interactions with the lesson activities. In the reflecting phase, data from observations and comprehension tests were analyzed to evaluate the effectiveness of the intervention. Adjustments to the teaching approach were made in preparation for the next cycle to improve outcomes further.

The study employed observation checklists to measure behavioral, cognitive, and emotional engagement; field notes to capture qualitative insights into classroom dynamics, and comprehension tests to assess students' understanding of the listening materials (Khairat, 2024). Data collection combined these tools, with checklists documenting specific engagement indicators such as attentiveness and participation, field notes providing qualitative observations, and comprehension tests measuring listening proficiency after each cycle. Data analysis was conducted using both quantitative and qualitative methods. The quantitative analysis involved calculating the percentage of students meeting engagement indicators and achieving the minimum score (KKM) of 72 in comprehension tests. Qualitative analysis focused on reviewing field notes to gain deeper insights into students' behaviors and classroom interactions. This comprehensive

approach enabled a detailed evaluation of how EDpuzzle influenced students' engagement and listening comprehension throughout the cycles. The formulas used for calculating these engagement scores were as follows.

(1). Cognitive Engagement

$$C_{eng}(\%) = \left(\frac{N_{ci}}{N_s \times I_c} \right) \times 100$$

Note =
 $C_{eng}(\%)$ = Cognitive Engagement Score
 N_{ci} = Number of Checkmarks for Cognitive Indicators
 N_s = Total Number of Students
 I_c = Number of Cognitive Indicators

(2) Behavioural Engagement

$$B_{eng}(\%) = \left(\frac{N_{ci}}{N_s \times I_b} \right) \times 100$$

Note =
 $B_{eng}(\%)$ = Behaviour Engagement Score
 N_{ci} = Number of Checkmarks for Behaviour Indicators
 N_s = Total Number of Students
 I_b = Number of Behaviour Indicators

(3) Emotional Engagement

$$E_{eng}(\%) = \left(\frac{N_{ci}}{N_s \times I_e} \right) \times 100$$

Note =
 $E_{eng}(\%)$ = Emotional Engagement Score
 N_{ci} = Number of Checkmarks for Emotional Indicators
 N_s = Total Number of Students
 I_e = Number of Emotional Indicators

where N_{ci} , N_{bi} , and N_{ei} represent the number of checkmarks for cognitive, behavioral, and emotional indicators, respectively, and N_s is the total number of students. Test results were categorized into performance ranges to assess comprehension, with the goal being that at least 70% of students achieved or exceeded the minimum standard score (KKM) of 72. This comprehensive approach allowed for a detailed evaluation of how EDpuzzle influenced student engagement and comprehension in English listening activities.

FINDINGS AND DISCUSSION

Result of emotional engagement

In Cycle 1, the students demonstrated relatively low levels of emotional engagement. Many appeared disinterested during the activities, showing limited enthusiasm for participating in the EDpuzzle tasks. Disruptions were frequent, with some students displaying boredom or frustration, particularly when encountering challenging

questions or unclear instructions. The classroom atmosphere was often subdued, with minimal interaction among students, reflecting a lack of intrinsic motivation. Observations indicated that students struggled to connect emotionally with the content, and their responses were largely passive, suggesting the need for adjustments in the teaching approach and activity structure. Reflecting on these challenges, the researcher and collaborator identified key areas for improvement, such as better preparation, addressing logistical issues, and enhancing the interactive elements of EDpuzzle. These adjustments were implemented in Cycle 2, leading to a significant transformation in the students' emotional engagement.

By Cycle 2, students were noticeably more emotionally invested in the learning process. The adjustments made, including thorough preparation by the researcher and collaborator and enhancements to the activity structure, created a more supportive and engaging environment. For instance, the EDpuzzle Station Challenge added a friendly competitive element, which fueled students' enthusiasm and motivation. The classroom atmosphere became dynamic, with students actively participating, collaborating with peers, and celebrating their successes through cheers and high-fives. The ability to rewatch video segments and receive immediate feedback further bolstered their confidence, reducing frustration and fostering a sense of accomplishment. The features of EDpuzzle, such as embedded questions and visually engaging content, significantly transformed the learning experience. These elements not only made the activities more interactive but also catered to the students' need for control over their learning process, allowing them to revisit challenging sections and learn at their own pace (Rozak & Matin, 2024). As a result, students showed heightened interest, consistent motivation, and a positive attitude throughout the lessons, culminating in a more emotionally connected and engaging learning experience. The progression from Cycle 1 to Cycle 2 demonstrates the importance of adapting teaching strategies to address observed challenges, ultimately leading to improved emotional engagement and a more positive classroom atmosphere.

The result of behavioral engagement

In cycle 2, the behavioural engagement of the students improved as well. During the EDpuzzle Station Challenge, most of the students demonstrated focus and discipline. The students attended the class on time. This punctuality was crucial for maintaining the flow of the lesson and ensuring that all planned activities could be carried out. Arriving on time made the class start promptly, reducing the chances of disruptions that often occur when students were late. It also ensured that students did not miss any part of the instruction or activity, which is particularly important when engaging in time-sensitive tasks like the EDpuzzle Station Challenge.

The classroom was organized into distinct stations, with each group tasked with watching videos and answering related questions within a set time limit. The competitive and timed setting of the activity played a key role in keeping the students engaged. Most of the students participated actively, leaning close to their devices and engaging in lively discussions with their group members. Unlike in Cycle 1, where students were often distracted or disengaged, Cycle 2 showed that the students were immersed in the learning process. This demonstrated their commitment to the task, as they were focused on completing their work accurately rather than getting distracted by unrelated activities on their devices.

The behavioural changes became even more evident when the students transitioned from group activity to individual work. After the EDpuzzle Station Challenge, the students were given individual listening exercises on EDpuzzle. The transition was smooth, and the enthusiasm from the group activity carried over into their tasks. In cycle 1, students were observed walking around the classroom, chatting with peers, or engaging in off-task behaviour during assignments. However, in cycle 2, such disruptions were notably absent. All 20 students remained seated, focused, and disciplined as they worked on their exercises. They took the tasks seriously. This shift in behaviour was a clear indicator that the students were not only more engaged but also more committed to their learning. This improvement was further confirmed by the descriptive statistics, which showed an engagement score of 86.67%. This result surpassed the 70% threshold required for success in this study.

Moreover, when students answered correctly, they often reacted with visible reactions, with some clapping their hands in celebration and others exchanging enthusiastic high-fives with their members. This collective display of joy reflected not only their satisfaction with getting the answer right but also created a positive and energetic atmosphere in the classroom. Their excitement demonstrated that they were engaged with the material and motivated to continue performing well in their exercises. On the other hand, when students answered incorrectly, they did not give up; instead, they showed remarkable resilience by immediately taking action to improve. Many students could be seen frowning in concentration as they quickly revisited the video segments related to the question. They carefully rewatched the relevant parts, pausing and replaying specific sections to catch details they might have missed initially. The students were discussing the content with their peers to clarify their understanding. Rather than becoming discouraged, they used the incorrect answer as a learning opportunity.

The result of cognitive engagement

During the second cycle, the students' cognitive engagement showed improvement as the other engagements. The EDpuzzle Station Challenge was particularly supportive in deepening their understanding of the degree of comparison. As students engaged with the interactive content, they were required to pay close attention to the details presented in the videos. This attention to detail was evident in their ability to correctly identify and differentiate between comparative and superlative forms during the listening exercises. Moreover, the data by descriptive statistics showed that cycle 2 reached 78.33%, surpassing the 70% threshold required for success. After the group activity, the students grasped the material better when they transitioned to individual English listening exercises on EDpuzzle. The instant feedback provided by EDpuzzle played a crucial role in reinforcing their learning. Students could immediately see the results of their answers, which motivated them to correct their mistakes and helped them retain the information more. The features let them rewatch specific video segments, further supporting their cognitive engagement, as it enabled them to revisit and review parts of the lesson, they found challenging.

Throughout the individual exercises, students demonstrated a deeper comprehension of the degree of comparison. They answered the questions more confidently. This marked a clear advancement from Cycle 1, where students struggled with the material. The absence of distractions, such as walking around or chatting with peers, indicated that students were more focused and invested in their learning during this cycle.

The result of students' comprehension in listening using EDpuzzle

The results of the English listening test administered in Cycle 2 provide compelling evidence regarding the EDpuzzle activities, particularly in improving students' comprehension abilities. A significant 85% of the students who participated in the assessment scored above the minimum passing criterion, known as the Kriteria Ketuntasan Minimal, which is set at 72. In contrast, a substantial majority of these students achieved ratings categorized as "Excellent" or "Very Good." This outcome strongly indicates that the utilization of the EDpuzzle platform played a crucial role in improving students' understanding of complex concepts such as degree comparisons. The impressive scores attained on the test not only highlight the successful implementation of engaging and interactive listening activities but also demonstrate how these pedagogical strategies contributed to a deeper grasp of the material, ultimately leading to an overall enhancement in students' listening comprehension skills.

Discussion

The substantial improvement in emotional engagement during the implementation of EDpuzzle underscores its significant role in creating a more dynamic and interactive learning environment. Emotional engagement, as highlighted by Fredricks et al. (2004), is a crucial factor in fostering student motivation and participation. Initially, disruptions and the lack of engaging elements in traditional methods contributed to student dissatisfaction and disinterest in Cycle 1. The introduction of EDpuzzle addressed these issues by offering interactive features such as the ability to rewatch videos and receive immediate feedback, reducing frustration and enhancing confidence. This aligns with Zou et al. (2022), who argue that emotionally engaging tools help sustain interest, especially in challenging areas like English listening. The positive emotional response observed in this study echoes Shahid et al. (2023), who emphasize the value of interactive platforms in creating supportive and motivating learning environments.

Similarly, the marked improvement in behavioral engagement reflects the structured and interactive approach facilitated by EDpuzzle. Behavioral engagement, as defined by Fredricks & McColsky (2012), involves students being present, attentive, and participative. In Cycle 1, various disruptions, including technical issues and off-task behaviors, hindered active participation. EDpuzzle's competitive elements, such as the Station Challenge, fostered punctuality and collaboration while minimizing distractions. This finding resonates with Mintzes & Walter (2020), who emphasize the importance of reducing negative behaviors to enhance engagement. Moreover, Hamid (2022) supports the idea that students perceive interactive tools positively, which can lead to improved classroom discipline and focus. The research thus demonstrates how integrating competitive and interactive elements can create a more organized and engaging learning environment.

Cognitive engagement also saw significant enhancement through the structured integration of EDpuzzle. According to Sweller's Cognitive Load Theory (2011), breaking down information into manageable parts facilitates comprehension and reduces cognitive overload. In Cycle 1, students struggled to focus and comprehend the content due to disruptions and a lack of engagement. EDpuzzle's embedded questions required active participation and critical analysis, fostering deeper cognitive processing. This aligns with the work of Afiyattena et al. (2024), who highlight that cognitive engagement involves making significant efforts to understand complex tasks. Additionally, Bodie et al. (2023)

describe cognitive engagement as the process of analyzing and interpreting content actively, which EDpuzzle effectively supported by enabling students to engage with video content critically and iteratively.

The improved comprehension outcomes observed in this study further reinforce the value of EDpuzzle as a learning tool. In Cycle 2, students demonstrated enhanced understanding of comparative degrees, attributable to EDpuzzle's interactive features, such as embedded questions and real-time feedback. Afifyattena et al. (2024) and Bodie et al. (2023) similarly emphasize the effectiveness of interactive tools in promoting comprehension and learning retention. This study corroborates their findings, showing that technology-enhanced learning tools can address comprehension challenges and significantly improve outcomes. By providing opportunities for active engagement, EDpuzzle enabled students to grasp complex materials better, making it a valuable addition to the teaching of listening skills.

Despite these benefits, the study has its limitations. While EDpuzzle proved effective in enhancing engagement and comprehension, the reliance on technological tools requires adequate infrastructure and digital literacy among both students and teachers. Technical issues encountered during Cycle 1 highlight the need for better preparation and training to maximize the potential of such tools. Additionally, the study's focus on a single class limits the generalizability of the findings. Future research could explore the application of EDpuzzle in diverse educational settings and subjects, broadening its impact and addressing contextual challenges. Nonetheless, this research demonstrates the transformative potential of EDpuzzle in fostering student engagement and improving learning outcomes in English listening activities.

CONCLUSION

Reflecting on the integration of EDpuzzle into the Station Challenge game during the second cycle, it is evident that this approach successfully addressed the research problem by enhancing eighth-grade A students' engagement in English listening activities and improving their comprehension of comparative degrees at SMP Islam Al-Azhar 17 Pontianak. The combination of interactive features and a gamified structure created a dynamic and stimulating learning environment that fostered students' focus, participation, and enthusiasm. These outcomes highlight the potential of incorporating technology-based tools to make learning more interactive and meaningful. However, this study recognizes certain limitations, such as the reliance on technology, which requires adequate infrastructure and digital literacy among both teachers and students. Technical issues encountered in the early stages underscore the importance of preparation and resource availability. Additionally, the findings are limited to a single class, suggesting the need for further exploration of EDpuzzle's application across diverse settings and larger populations to validate its broader effectiveness.

To ensure the effective integration of EDpuzzle into teaching practices, it is recommended that schools invest in reliable infrastructure, such as internet access and digital devices, to create an equitable and conducive environment for technology-enhanced activities. Teachers should receive professional development to familiarize themselves with EDpuzzle's features, best practices, and troubleshooting strategies. Similarly, students can benefit from introductory workshops that improve their

confidence and ability to use the platform effectively. Pilot programs and iterative development can further refine implementation by identifying potential challenges early and allowing educators to tailor the approach to their specific classroom needs. Future research should explore the application of EDpuzzle in other subjects, such as science, mathematics, or history, and across different grade levels to evaluate its adaptability and broader impact. Longitudinal studies would provide insights into the long-term effects of using EDpuzzle on students' academic performance and engagement, while comparative research could highlight its effectiveness compared to other gamified or technology-based learning tools. Additionally, studies focusing on diverse educational contexts, including rural, urban, and multicultural settings, can shed light on how contextual factors influence its success. This study underscores the transformative potential of technology-enhanced learning tools like EDpuzzle to foster active engagement and deeper comprehension among students. By addressing infrastructure gaps, providing adequate training, and exploring its applicability across various contexts, schools can harness the full potential of such tools to create dynamic and inclusive educational experiences. Policymakers and educational institutions must work collaboratively to develop strategic initiatives that support the sustainable adoption of innovative technologies in classrooms. Through such efforts, tools like EDpuzzle can continue to revolutionize teaching and learning, preparing students for a digitally driven future.

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