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THE EFFECTIVENESS OF GAME-BASED LEARNING USING WAYGROUND ON STUDENTS' INTEREST AND PERFORMANCE IN ENGLISH AT AN INDONESIAN JUNIOR HIGH SCHOOL

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Abstract: Although digital platforms and gamification are increasingly used in English language classrooms, maintaining students' interest and performance in learning remains a challenge. Therefore, this study examines whether the use of Wayground online teaching media affects students' interest and performance in English language learning, with student feedback and

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ease of teaching material as mediating variables. A quantitative approach was applied using an online questionnaire with a five-point Likert scale as the research instrument. Data were collected through random practical sampling from 142 junior high school students with experience using Wayground. The data were then analyzed using Structural Equation Modelling (SEM) with AMOS and SPSS version 25. The results show that the use of Wayground online teaching media has a significant positive effect on student interest (coefficient = 0.200; $p < 0.01$). However, the use of Wayground online teaching media does not directly affect students' learning performance (coefficient = 0.029; non-significant). In addition, student feedback and ease of teaching materials were found to be highly significant mediating variables in the relationship between the use of Wayground online teaching media and student performance ($p < 0.001$). These findings suggest that effective digital English learning requires system usability, meaningful interactions, quality feedback, and relevant materials. Research on Wayground media highlights these elements as vital for future educational success.

Keywords: *English performance; game-based learning; online teaching media; students' interest; Wayground*

INTRODUCTION

The integration of information technology in education has shifted from being a supporting tool to a fundamental component of the modern learning ecosystem. The massive use of online teaching media has not only changed the way material is delivered, but also requires a redefinition of the roles of teachers and students in a more interactive and autonomous virtual classroom environment. Fundamentally, education is a process of shifting individual behavior for the better, driven by continuous interaction between educators and students across all stages of planning, organizing, implementing, and evaluating education.

The development of information and communication technology in the industrial era has heavily influenced this interaction, enabling educators to improve overall educational quality through digital integration. Since the invention of the Internet technology, spatial and temporal boundaries in education have largely dissolved. According to Rizqiningsih and Hadi (2019). Students can now study anywhere and anytime through the facilities provided by electronic-based learning systems. Consequently, teachers must select the right media and instructional methods that systematically spark and maintain learning motivation.

Learning through online teaching media aligns closely with the principles of Self-Determination Theory (Ryan & Deci, 2020) because it actively supports autonomy, improves competency, and strengthens social connections among students. When executed by an effective instructional design, online teaching media can directly optimize intrinsic motivation, student engagement, and long-term academic outcomes (Pan et al., 2021).

The development of information and communication technology in the industrial era has heavily influenced this interaction, enabling educators to improve overall educational quality through digital integration (Nadeem et al., 2023). Since the invention of the Internet, spatial and temporal boundaries in education have largely dissolved. Consequently, teachers must select the right media and instructional methods that systematically spark and maintain learning motivation (Mandouit, 2018).

Online teaching media is a teaching technique that facilitates learning, encourages motivation, improves performance and participation, enhances lesson interactivity, and stimulates learning, leading to the expansion of students' knowledge (Zainuddin & Perera, 2019). This mechanism aligns closely with the foundational theory of Prensky (2001). Who stated that an educational game must include rules, explicit goals, immediate feedback, challenges, interactions, and narratives to stimulate performance improvement. While deploying game elements in contexts that do not traditionally involve gaming is

a relatively new development, it serves as an effective strategy for generating a positive learning environment (Nadeem et al., 2023).

When integrated into language acquisition frameworks, several studies in English language teaching (ELT) have noted that game-based learning stands out as one of the most enjoyable, engaging, and effective instructional methods available to modern educators (Chan & Lo, 2024). Gamification research has demonstrated that targets centered on intrinsic motivation and core linguistic competence exert a significant positive impact on active work engagement and spontaneous problem-solving (Inayati & Waloyo, 2022).

Despite these pedagogical benefits, foreign language educators frequently encounter severe emotional, behavioral, and logistical learning difficulties in traditional setups (Munawir & Hasbi, 2021). These ongoing classroom problems include strictly limited class hours for practicing active language skills, a lack of authentic material resources, and excessively large class sizes. Therefore, utilizing targeted online teaching media serves as a necessary digital innovation to minimize these systemic barriers and facilitate students' systematic improvement of their learning abilities.

Wayground, formerly known as Quizizz, is a free online teaching platform and formative assessment tool that enables teachers to administer assessments in class and as homework (Irwansyah & Izzati, 2021). In addition, the Wayground application is very easy for anyone to access, anywhere, and at any time, as a learning medium (Sapuan et al., 2025). Besides, the Wayground application as a learning medium is designed to be creative, innovative, fun, and valid. Utilizing the Wayground application, teachers and students can immediately see their learning scores, and teachers can download them in an Excel file format. This tool tends to be used effectively, helping to stimulate students' metacognition, classroom activity, and attendance in higher education, which requires limited participation from teachers and students (Bicen & Kocakoyun, 2018).

Several previous studies revealed that integrating game-based learning is highly effective in increasing students' overall interest in

educational contexts. According to Chan and Lo (2024). the explicit application of game-based learning methods in the classroom systematically drives student activity (Baptista & Oliveira, 2019). Observed that the use of digital game-based learning tools can develop students' intrinsic interest in learning, a trend that is clearly visible when tracking student enthusiasm for quiz-centered mechanics (Efendi et al., 2025). Further research confirmed that a gamification-based learning design directly amplifies active student engagement. However, while these previous studies have described the structural benefits of using Wayground and tracked students' general perceptions of the platform in language classrooms (Degirmenci, 2021). A critical gap remains. For example, few studies have analyzed these outcomes through the interconnected perspective of cognitive, affective, and psychomotor domains alongside robust mediating variables such as feedback and material ease (Sersanawawi et al., 2023).

To address this gap, this study applied the Wayground application as a gamification approach in the classroom to map its true impact on junior high school students' engagement and interest. The aim of this study was to determine how student engagement and interest are influenced in terms of their ability to use Wayground in learning English as a foreign language. Based on these objectives, this study seeks to answer the following research questions: 1) Does the use of Wayground online teaching media directly affect students' interest and performance in English?, 2) To what extent do student feedback and the ease of teaching materials mediate the relationship between the use of Wayground and students' overall interest and performance in English?

By addressing these questions, the researchers hope that the empirical results of this study can provide deep insight into the effectiveness of Wayground as a game-based learning medium that can systematically increase students' interest and performance in learning English.

METHOD

Research Design

This study employed a quantitative research design to examine the causal relationships among the observed variables and validate their structural pathways based on the game-based learning theory (Byrne, 2018). This design was considered appropriate because it allowed for rigorous hypothesis testing using Structural Equation Modelling (SEM) to simultaneously evaluate direct and indirect mediating effects within an educational setting (Ahmar & Rahman, 2017).

Participants and Sampling

The target population of this study comprised junior high school students. The sample was drawn using a random practical sampling technique from grades 7, 8, and 9 at SMP Negeri 2 Wotu, East Luwu Regency, Indonesia. A total of 185 junior high school students participated in the survey; however, after data cleaning, 142 responses were deemed valid and complete, resulting in a usable response rate of 76.76%.

Data Collection Instruments

Data were collected using an online survey questionnaire as the primary research instrument. A standard five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") was used for all scale items. To maintain data integrity and address potential behavioural measurement biases common in junior high school settings, measurement items were adopted from established instruments with high reliability and validity (Podsakoff et al., 2003). These items were carefully tailored to measure five distinct constructs: the use of Wayground online teaching media, student feedback, ease of teaching materials, student interest, and student performance.

The specific literary sources from which these measurement instruments were adapted are systematically summarized in Table 1.

Table 1.
Summary of literary sources of the instrument

Construct	Source Adaptation
Use of Wayground Online Teaching Media (X_1)	Adapted from (Nuci et al., 2021)
Student Feedback (Z_1)	Adapted from (Inayati & Waloyo, 2022)
Ease of Teaching Materials (Z_2)	Adapted from (Lusiana & Maryanti, 2020)
Student Interest (Y_1)	Adapted from (Maulidya et al., 2022)
Student Performance (Y_2)	Adapted from (Almufarreh, 2026)

Based on these instruments, a conceptual framework was developed to track the structural interactions among the variables. As illustrated in the following Figure 1, the model is organized around the following pathways.

Direct Effects: The use of Wayground online teaching media (X_1) is hypothesized to directly influence student interest (Y_1), student performance (Y_2), student feedback (Z_1), and ease of teaching materials (Z_2).

Indirect Medial Pathways: Student feedback (Z_1) and the ease of teaching materials (Z_2) function as critical mediator variables that connect the platform's usage to final student interest (Y_1) and academic performance (Y_2).

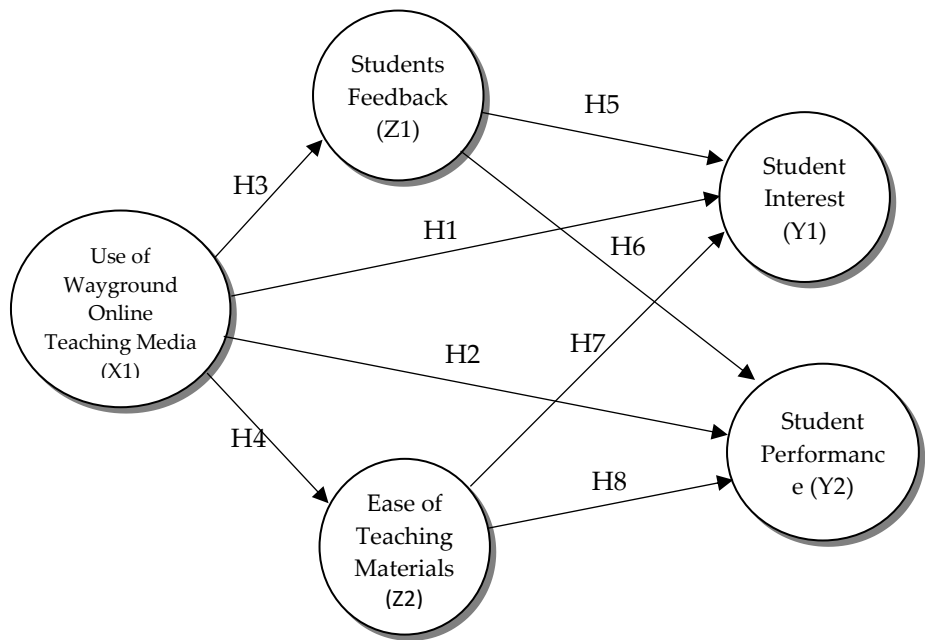


Figure 1. *Research model*

The following eight hypotheses (H1–H8) were formulated based on the research model:

- H1: The Use of Wayground Online Teaching Media (X₁) has an effective influence on Student Interest in Learning English (Y₁)
- H2: The Use of Wayground Online Teaching Media (X₁) has an effective influence on Student Performance in English (Y₂)
- H3: The Use of Wayground Online Teaching Media (X₁) has an effective influence on Student Feedback in English Lessons (Z₁)
- H4: The Use of Wayground Online Teaching Media (X₁) has an effective influence on the Ease of Teaching Materials in English Subjects (Z₂)
- H5: Student Feedback (Z₁) has an effective influence on Student Interest in Learning English (Y₁)
- H6: Student Feedback (Z₁) has an effective influence on Student Performance in English (Y₂)

H7: The Ease of Teaching Materials (Z_2) has an effective influence on Student Interest in Learning English (Y_1)

H8: The Ease of Teaching Materials (Z_2) has an effective influence on Student Performance in English (Y_2)

Data Collection Procedures

Data collection was conducted in several distinct stages using digital distribution channels. An online survey was developed and deployed using Google Forms. The active data collection ran from November 1 to December 1, 2025. Prior to completing the survey, all junior high school students were fully briefed on the purpose of the study regarding their English language classes, and participation was completely voluntary. Informed consent was obtained from all participants, and strict data anonymity was guaranteed throughout the research process to minimize the response bias.

Data Analysis

The collected data were systematically analyzed using Structural Equation Modelling (SEM) with AMOS and SPSS version 25 software. First, descriptive statistics were applied to evaluate the frequency distribution of the demographic samples. Second, Pearson's correlation tests were conducted to evaluate the relationships between the predictors (use of Wayground online teaching media, student interest, and student performance) and criterion variables (student feedback and teaching material ease). This step allowed the researchers to check for Common Method Variance (CMV) and detect post-collection biases. Finally, this study utilized the bootstrapping process established by Sari et al. (2025) to perform rigorous significance testing on the direct, indirect, and mediating effects of the mediating variables.

FINDINGS

Respondent Demographic Characteristics

The respondents of this study consisted of 142 junior high school students. Within the gender distribution, female students

accounted for 81 participants (57.0%), while 61 were male (43.0%). In terms of academic grade level, the sample included 50 students from Grade 7 (35.2%), 49 from Grade 8 (34.5%), and 43 from Grade 9 (30.3%). Regarding direct experience with digital learning platforms, 50 students (35.2%) reported having experience using Wayground or Quizizz for 0-1 year, 49 students (34.5%) had been familiar with the platform for 1-2 years, and 43 students (30.3%) had used the platform for more than two years. This demographic distribution indicates that all participants had sufficient exposure to digital learning platforms, supporting the reliability and relevance of the data for subsequent structural analyses

Table 2.

Respondent demographics

Demographic Items	Frequency	Percentage (%)
Gender		
Male	61	43
Female	81	57
Class		
Seventh	50	35.2
Eighth	49	34.5
Ninth	43	30.3
Time period of using online Wayground		
0-1 years	50	35.2
1-2 years	49	34.5
2-3 years	43	30.3

Pearson Correlation

To ensure measurement accuracy, a pilot study was conducted to verify content validity and instrument clarity. The internal consistency and reliability of the scale items were evaluated using Cronbach's alpha coefficients (Hair et al., 2019). As shown in Table 3, the descriptive statistical analysis indicates a strong central tendency across all the studied constructs. The mean scores for the observed variables approached high-level thresholds within the 1-to-5 Likert scale, while all corresponding standard deviations remained tightly distributed

below 1.00, demonstrating low variance and high consistency in student responses.

Table 3.
Correlation matrix for measurement scales

Constructs	Mean	SD	UWOTM	SF	ETM	SI	SP
UWOTM	3.40	0.4					
SF	3.00	0.4	0.640**				
ETM	3.40	0.4	0.589**	0.586			
SI	3.00	0.4	0.622**	0.640	0.690		
SP	3.25	0.4	0.573**	0.642	0.670	0.685	0.573

Note: UWOTM: Use of Wayground Online Teaching Media, SF: Student Feedback, ETM: Ease of Teaching Materials, SI: Student Interest, SP: Student Performance, SD: Standard Deviation Diagonal elements are the square roots of the AVE for each construct

Pearson correlations are shown below the diagonal

Significant at *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

Measurement Results

Structural Equation Modelling (SEM) was used to test the proposed model and the research hypotheses. A two-stage approach is used in this study (Byrne, 2018). First, the measurement model was based on confirmatory factor analysis (CFA) to examine the reliability and validity of the research constructs. A structural model was used to test the strength and direction of the proposed relationships among constructs. The CFA results for the remaining 23 items indicated a good fit.

SEM was applied to test the proposed conceptual model using a rigorous two-stage analytical approach (Byrne, 2018; Hair et al., 2019). In the first stage, a measurement model using Confirmatory Factor Analysis (CFA) was conducted to evaluate the psychometric properties, internal validity, and reliability of the operationalized constructs. The initialization parameters of the remaining 23 measurement items demonstrated a strong data fit, as summarized in Table 4.

Table 4 presents the individual item performance and structural configuration of the measurement scales [source: 2]. Specifically, it outlines the Maximum Likelihood Estimation (MLE) factor loadings, measurement errors, and Squared Multiple Correlations (SMC) for each item, alongside the overarching Composite Reliability (CR), Average Variance Extracted (AVE), and Cronbach's alpha values for every latent variable. As displayed in Table 4, all individual items exhibited robust factor loadings well above the conservative threshold of 0.50 (ranging from 0.855 to 0.972), confirming that each question strongly registered onto its respective target construct. The SMC values further indicate that a substantial proportion of the variance in each indicator is accounted for by the underlying latent factor. Coupled with a Standardized Root Mean Residual (SRMR) of 0.056, these measurement results demonstrate that the instrument possesses high construct validity and is completely suitable for structural path evaluation.

Table 4.
Measurement results

Constructs	MLE estimates factor loading/ measurement error		Squared multiple correction (SMC)	Composite reliability (CR)	Average of variance extracted (AVE)	Cronbach's a
Use of Wayground Online Teaching Media				0.981	0.910	0.9758
UWOTM 1	0.941	0.449	0.551			
UWOTM 2	0.936	0.395	0.605			
UWOTM 3	0.963	0.466	0.534			
UWOTM 4	0.961	0.511	0.489			
UWOTM 5	0.968	0.286	0.714			
Student Interest				0.965	0.872	0.951
SI 1	0.946	0.483	0.517			
SI 2	0.918	0.542	0.458			
SI 3	0.915	0.443.	0.557			

SI 4	0.955	0.428	0.572			
Student Performance				0.959	0.855	0.944
SP 1	0.941	0.217	0.783			
SP 2	0.928	0.499	0.501			
SP 3	0.896	0.442	0.558			
SP 4	0.935	0.387	0.613			
Student Feedback				0.966	0.849	0.955
SF 1	0.855	0.511	0.489			
SF 2	0.911	0.542	0.458			
SF 3	0.939	0.487	0.513			
SF 4	0.949	0.319	0.681			
SF 5	0.950	0.234	0.766			
Ease of Teaching Materials				0.975	0.888	0.968
ETM 1	0.961	0.469	0.531			
ETM 2	0.971	0.281	0.719			
ETM 3	0.972	0.436	0.564			
ETM 4	0.93	0.483	0.517			
ETM 5	0.874	0.487	0.513			

As displayed in Table 4, all individual items exhibited robust factor loadings well above the conservative threshold of 0.50 (ranging from 0.855 to 0.972), confirming that each question strongly registers onto its respective target construct. While the Normed Fit Index (NFI = 0.678) fell below preferred thresholds due to its mathematical sensitivity to modest sample sizes under N=200 (Bentler, 1990; Hair et al., 2019), alternative baseline comparison indices established an acceptable global model fit. Specifically, the Comparative Fit Index (CFI = 0.924) and the Tucker-Lewis Index (TLI = 0.911) both safely exceed the standard 0.90 benchmark for good model fit. Coupled with a Standardized Root Mean Residual (SRMR = 0.056, threshold <0.08) and a Root Mean Square Error of Approximation (RMSEA = 0.065, threshold <0.08), these measurement results conclusively demonstrate that the instrument possesses high construct validity and is completely suitable for structural path evaluation.

Structural Model

The model was appropriate for the data. The summary in Table 5 below shows a positive and significant relationship between the use of Wayground online teaching media and student interest (0.200; $p < 0.001$), thus supporting H1, but not with student performance (0.029; $p < 0.001$), showing a non-positive and insignificant relationship, thus not supporting H2. Similarly, H3 and H4 were supported, indicating a positive relationship between the use of Wayground online teaching media and student feedback (0.936; $p < 0.001$) and the ease of teaching materials (0.983; $p < 0.001$). The same applies to H5 and H6, which show positive and significant relationships between student feedback and student interest (0.136; $p < 0.001$) and student performance (0.408; $p < 0.001$). Furthermore, the ease of teaching materials also had a positive and significant effect on student interest and performance (0.653; $p < 0.001$; 0.614; $p < 0.001$). Therefore, H7 and H8 were supported. Table 5 presents the structural model adopted in this study.

Table 5.

Proposed model results

Hypotheses	Path	Coefficients	Test Results
H1	UWOTM -> SI	0.200**	Supported
H2	UWOTM -> SP	0.029	UnSupported
H3	UWOTM -> SF	0.936***	Supported
H4	UWOTM -> ETM	0.983***	Supported
H5	SF -> SI	0.136**	Supported
H6	SF -> SP	0.408***	Supported
H7	ETM -> SI	0.653***	Supported
H8	ETM -> SP	0.614***	Supported

Note: Significant at *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

To provide a clearer visualization of the tested relationship, Figure 2 illustrates the structural results adopted in this study.

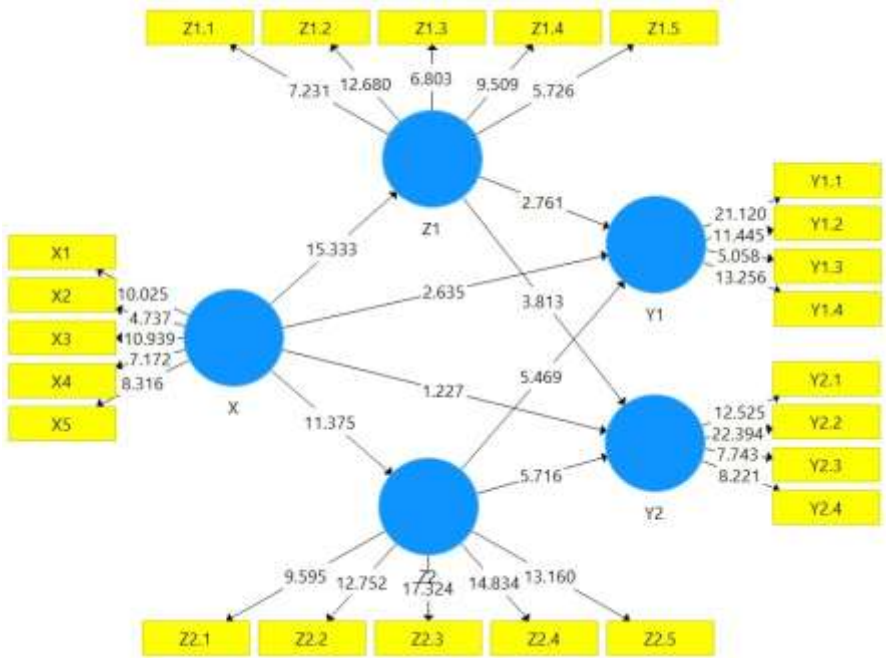


Figure 2. *Structural Results Analysis*

The study analyzed data from 142 junior high school students (57.0% female, 43.0% male) distributed across Grades 7, 8, and 9 with varying levels of digital platform experience. Measurement model results via Confirmatory Factor Analysis (CFA) demonstrated robust factor loadings (0.855 to 0.972) and acceptable model fit indices, confirming high construct validity. Structural Equation Modeling (SEM) path analysis revealed that hypotheses H1, H3, H4, H5, H6, H7, and H8 were supported, showing significant positive relationships between the use of Wayground online teaching media, student feedback, ease of teaching materials, student interest, and student performance. Conversely, hypothesis H2 was unsupported due to a non-significant direct relationship between Wayground media use and student performance (0.029; $p < 0.001$).

DISCUSSION

This study investigates the effect of using Wayground online teaching media on student interest and performance, both directly and

indirectly through student feedback and ease of teaching materials. These findings offer important knowledge and understanding of the effect of digital use in the English learning process, especially those focused on fostering student interest and performance.

The findings show that the use of Wayground online teaching media significantly affects student interest, implying that this media helps educators transform conventional material delivery into a more interactive format, thereby making students feel more involved and less prone to boredom during learning. This finding is consistent with previous studies that emphasize that the application of technology in education can increase student motivation by making learning materials more relevant and engaging (Pratama, 2021). However, the use of Wayground online teaching media did not have a significant effect on student performance (Husain & Khan, 2016). This insignificant finding indicates that Wayground media functions more as a container or infrastructure for delivering material. Student academic performance remains dependent on the cognitive quality and depth of students' understanding of the content and teaching materials. These results support the view that the use of multimedia in learning can improve students' understanding and performance if it can present teaching materials that are easy to understand (Syafitri et al., 2024).

Furthermore, this study found that the use of Wayground online teaching media had a positive and significant effect on student feedback and learning outcomes. Through Wayground, students received evaluations, comments, and responses to their work in a transparent, structured, and systematic manner (Ismaizam et al., 2022). This encouraged students to be more active in receiving and providing constructive feedback during the learning process. This continuous feedback helps students understand their strengths and weaknesses while providing clear directions for further learning improvement. This is in line with the view that the use of interactive digital media, such as Wayground, is considered to have a positive impact on students' engagement and feedback in learning (Rahayu & Purnawarman, 2018).

In addition to influencing student feedback, the use of Wayground teaching media also had a positive and significant effect on the ease of teaching materials. This indicates that Wayground not only functions as a means of delivering material but also as a medium that can simplify and optimize the presentation of teaching materials so that they are more accessible and understandable to students. The ease of teaching materials facilitated by Wayground is an important factor in creating an effective learning process that is centered on student needs (Cahyani & Putranto, 2024). Wayground allows teachers to present learning materials in various formats, such as written texts, illustrative images, educational videos, and interactive educational games. This diversity of formats makes learning materials more varied, interesting, and less monotonous, thereby increasing student attention and engagement during the learning process. In line with previous research, Wayground is not only used as a learning medium but also as a tool for delivering teaching materials that are easier to understand and more varied (Pratama, 2021).

As mediator variables, student feedback and teaching material accessibility proved to have a significant role in mediating the relationship between the use of Wayground online teaching media and student interest in learning and their performance. Student feedback played a significant role in mediating the relationship between the use of Wayground online teaching media and student interest, as this media was considered to make an important contribution to creating a conducive learning environment for students (Cahyani & Putranto, 2024). Improvements in the quality of feedback received by students enable them to understand their mistakes, correct their shortcomings, and reflect on their learning outcomes continuously. Feedback delivered in a timely, clear, and constructive manner helps students build a deeper conceptual understanding, thereby indirectly encouraging an increase in learning interest. These results are in line with previous research that revealed that providing feedback can help students understand what is being taught, thereby fostering their

interest in learning and improving their performance (Yulhendri et al., 2025).

Student feedback also plays a significant role as a mediating variable in the relationship between the use of Wayground online teaching media and student performance in this study (Johannsen et al., 2023). These findings indicate that the use of Wayground does not directly impact student performance improvement but rather has an indirect effect through the mechanism of effective feedback during the learning process. Thus, the success of using Wayground online teaching media in improving student learning performance is highly dependent on the quality of feedback received. By utilising Wayground's features, teachers can provide quick, structured, and continuous feedback on student work. This feedback helps students identify mistakes, understand concepts that they have not mastered, and know the necessary steps for improvement (Kahu et al., 2017). This process encourages students to reflect on their learning outcomes and deepen their conceptual understanding, ultimately contributing to improving their academic performance. These findings are in line with previous studies that confirm that if a student has little interest in something, it is certain that their learning outcomes will also be unsatisfactory (Dakhi et al., 2022)

The ease of access to teaching materials provided through the Wayground online learning platform plays an important role as a mediating variable in the relationship between the use of Wayground and an increase in students' interest in learning. These findings show that Wayground not only functions as a medium for delivering material but also as a means of making it easier for students to access, understand, and interact with teaching materials (Mesterjon et al., 2024). This ease is a key factor that encourages the growth of students' interest and enthusiasm in the learning process. Through Wayground, learning materials can be presented systematically and in various formats, such as text, visuals, illustrations, and interactive activities (Maryo & Pujiastuti, 2022). A clear and structured presentation of the material helps reduce students' cognitive load, allowing them to focus

more on understanding the content of the lesson. When students feel that the material is easy to understand and not confusing, they tend to show a more positive and enthusiastic attitude towards learning, which is reflected in their increased interest in learning. This is relevant with the findings of (Salem & Sobaih 2022). Who said that teaching materials in the form of contextual-based learning materials are very suitable for fostering student interest, which can be applied in every learning situation (Syafitri et al., 2024).

As a mediating variable, the ease of access to teaching materials provided by the Wayground online learning platform strengthens the relationship between the use of Wayground and student performance. These findings indicate that the use of Wayground does not directly improve student performance but has an indirect impact through ease of access and understanding of the teaching materials presented. Thus, the ease of teaching materials is a key factor that bridges the use of digital learning media and student academic achievement. Through Wayground, learning materials are presented in a structured and varied manner in various formats such as text, visuals, videos, and interactive activities. A clear and easy-to-understand presentation of the material helps students build a stronger conceptual understanding and reduces errors in understanding the learning content (Müller et al., 2023). When students can easily access and understand the material, they tend to be better able to apply that knowledge in assignments, exercises, and learning evaluations, which ultimately has a positive impact on their academic performance. In line with this, the ease of teaching materials presented through digital learning media, such as Wayground, has also been proven to improve student learning performance, as reported in research by Ismaizam et al. (2022).

Theoretical Implications

This study contributes to several aspects of the literature. First, it advances current understanding regarding the use of Wayground online teaching media in language learning, demonstrating how increases in student interest and performance are mediated by student

feedback and the ease of teaching materials. This process reveals robust structural relationships between the application of online teaching media, feedback loops, content presentation, student interest, and eventual student performance. Second, it highlights that student feedback and the ease of teaching materials play a vital, complete mediating role in bridging the relationship between digital media usage and student outcomes. Although this study reveals that the use of Wayground online teaching media has a direct positive effect on increasing student interest, it does not directly alter student performance. Instead, the strong operationalized role of these mediating variables is necessary to translate digital inputs into concrete performance enhancements. This underscores the importance of adopting structured gamified media in foreign language classrooms to serve as a reliable reference for future digital learning frameworks. Finally, this study extends the theoretical application of Social Identity Theory (SIT), originally formulated by Gon and Rawekar (2017), to the domain of digital pedagogy. Social Identity Theory posits that individuals derive motivation and shape their self-concept through group-based interactions and social comparison. In this study, the gamified features embedded within the Wayground platform – such as real-time points systems, immediate peer feedback loops, and interactive activities – activate these social identity dynamics among junior high school students. By transforming a conventional classroom setting into a shared, visible, and collaborative environment, the platform leverages peer dynamics to enhance collective student interest, which subsequently bridges the indirect structural pathway toward improved academic performance.

Managerial Implications

The findings of this study provide strategic guidance for educators and curriculum developers in formulating policies related to technology integration in schools. The focus should not only be on the technical functionality of the digital platforms. Although ease of use is very important, strong attention must also be given to creating

educational activities that are interesting, innovative, interactive, and that engage students. While Wayground has a strong influence on learning infrastructure (ease of use and feedback), it does not directly affect student performance. Therefore, it is necessary to ensure that the material on the Wayground online teaching media is systematically organized to maintain the ease of use of the teaching materials and ensure that student learning performance is maintained.

Limitations and Future Research Directions

Although this study provides valuable insights into the effectiveness of Wayground media, it has some limitations. First, this study was conducted at only one junior high school; therefore, the results cannot be generalized. Future research should include different beliefs, larger sample sizes, and other regions and geographical areas to encourage better conclusions. Second, the use of questionnaires completed independently by students may have introduced response bias. In addition, this study only used two mediators: student feedback and ease of use of teaching materials. Future research could analyze additional mediating or moderating variables, such as intrinsic motivation and learning environment, to deepen the understanding of student interest and performance.

CONCLUSION

The empirical findings of this study demonstrate that integrating Wayground online teaching media significantly enhances junior high school students' interest and performance in English language learning, though through distinctly divergent structural pathways. While the platform exerts a strong, direct positive impact on shifting student interest by transforming conventional text-heavy instruction into an interactive ecosystem, it demonstrates no direct capacity to improve raw student learning performance. Instead, its ability to elevate performance is completely indirect, operating as a structural conduit that relies entirely on its capacity to facilitate

immediate student feedback loops and enhance the presentation ease of teaching.

The original contribution of this study to the field of computer-assisted language learning (CALL) lies in empirical validation of this complete mediation model. By shifting the scholarly narrative away from the generalized assumption that gamification inherently drives academic achievement, this study isolates the precise mechanism showing that digital media succeeds only when engineered to scaffold formative feedback and lower cognitive load.

Based on these insights, several practical recommendations are offered for educational stakeholders. First, classroom teachers should move beyond utilizing gamified applications merely as casual warm-up or reward activities; instead, they must actively leverage the platform's instantaneous data-reporting dashboards to conduct immediate, targeted remedial instruction that addresses specific linguistic misconceptions right as they appear. Second, curriculum designers should systematically embed interactive digital applications directly into core unit plan architectures. Rather than treating these tools as optional add-ons, curriculum plans must intentionally sequence the digital content so that complex English grammar and vocabulary are modularly chunked, thereby directly capitalizing on the "ease of teaching materials" pathway to enhance long-term knowledge retention.

Ultimately, gamified environments serve as powerful pedagogical vehicles, but their long-term academic success remains dependent on the instructional quality and continuous interaction they enable. Given that this investigation was limited to a single school context and self-reported metrics, future longitudinal research across diverse educational landscapes is strongly recommended to further validate how evolving digital ecosystems shape language acquisition.

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DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES

The author states that artificial intelligence (AI) technology was used as a supporting tool in the process of writing this paper. Chat GPT and Gemini AI were used to assist in the process of exploring and developing ideas, structuring the framework of thought, and improving the clarity and coherence of academic language. In addition, the QuillBot and DeepL applications were used in the language editing stage, including paraphrasing and translation, to improve readability, consistency of terminology, and linguistic accuracy.

However, the entire scientific content of this manuscript, including the formulation of problems, data collection and analysis, interpretation of research results, drawing conclusions, and making academic decisions, is entirely the responsibility of the author. The use of AI technology is not intended to replace critical thinking, academic assessment, or the originality of the scientific work. The author has also thoroughly reviewed the entire manuscript to ensure data accuracy, academic integrity, and originality of the work, in accordance with the principles of scientific writing ethics.

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