

INTEGRATING TECHNOLOGY-BASED LEARNING IN ENHANCING STUDENTS' INTEREST IN ENGLISH LANGUAGE LEARNING

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ABSTRACT

The aim of this study was to explore students' interest in learning English using technology-based learning. This research uses mixed methods that collect data combining quantitative and qualitative data. Data was collected through direct observation and questionnaires distributed to students, which covered aspects such as motivation, involvement, and preferences for the use of technology in learning English. The participants consist of 28 students from SMA 1 Indrapuri. The data were analyzed using a combination of qualitative and quantitative techniques. Observation notes were examined through content analysis to identify patterns of student motivation, engagement, and responses to technology-based learning.

Questionnaire data were processed using descriptive statistics and thematic coding to capture overall trends and reinforce the qualitative findings. The result from observation revealed the use of technology, such as PowerPoint and Quizziz, is able to create a more interactive and interesting learning environment, with increased active participation and student involvement. The result from questionnaire indicated that the majority of students had a positive view of using technology in learning English. 75.7% of students enjoyed learning English using technology and 77.1% students stated that technology made learning English more engaging. However, only 58.5% of students' showed awareness of the importance of English for their future. Although technology succeeded in increasing interest in learning, the findings also revealed that its impact was not felt equally by all students. Therefore, teachers need to integrate technology effectively to meet the diverse needs and preferences of students. This research concluded that the use of technology in English language learning has great potential to increase students' interest in learning. It requires adequate infrastructure and training for both teachers and students to maximize the use of this technology.

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INTRODUCTION

At the Senior High School (SMA) level, the importance of English language education lies in its function as the foundation for global communication and access to modern scientific knowledge. The success of language learning is not only a matter of cognitive factors, but also one concerning affective factors. Here interest in learning a

foreign language is a leading predictor of proficiency (Hidi, 2006). Great interest becomes an internal thrust (intrinsic motivation) that launches students of their own volition into practice and perseverance in the face of learning difficulties (Ryan & Deci, 2000). On the other hand, the lack of interest directly affects motivation. As a result, student participation and learning outcomes are lower, and this has become a major problem faced anywhere by any teacher.

Despite its significance, low interest in learning English is still a problem in many educational settings, including SMA 1 Indrapuri. According to preliminary observations and evaluations conducted in the classroom, most senior high school students are generally passive, unenthusiastic, and disinterested in the repetitive, traditional teaching approaches. This disparity results from traditional teaching methods' frequent inability to meet students' fundamental psychological needs for competence and autonomy (Zhang & Crawford, 2024). Consequently, a methodological innovation is needed that can successfully pique students' interest and change passive learning experiences into ones that are more interactive and student-centered (Tianjuan, 2019).

The rapid changes in 21st century education have demonstrated the importance of adding digital resources and adopting a Technology-Based Learning (TBL) approach. TBL encompasses the use of technology in many forms to make the educational process seamless, flexible, and responsive to needs (Heriyanto et al., 2024; Redjeki & Muhajir, 2021). One of the most popular approaches to TBL is *Gamification*, the use of game design elements, such as point scoring, leader-boards, and feedback loops, to motivate and manage action in a non-game setting (Huseinović, 2023). In the context of English as a Foreign Language (EFL) instruction, *Gamification* has the potential of changing stereotypical learning tasks to the instruction of flexible, automated, and stimulating learning activities (Zhang & Hasim, 2023). The *Quizizz* platform is a research-validated, gamified educational tool that motivates students and enhances learning through interactivity (Maulana et al., 2024; Permana & Permatawati, 2023).

Learning technologies such as software, mobile applications, and interactive multimedia can greatly enhance student engagement (An et al., 2020). In this case study, we analyzed the technological platforms *PowerPoint* and *Quizizz*, both of which are vital in improving student participation and outcomes. Mulyani et al. (2021) indicated positive responses during the initial stages of the COVID-19 pandemic concerning the implementation of e-learning and pivoting instructions digitally, such as the freedom to learn from anywhere, the pace of learning, and novel learning experiences for students. Using *PowerPoint*, instructional materials can be accompanied by engaging visuals. This

greatly assists students in understanding the material and helps to boost their motivation (Rasita et al., 2020). *Quizizz* incorporates game elements and fosters a competitive spirit; thus, learning becomes fun. Students have the opportunity to compete against one another and track their rankings, which can encourage them to study. In this regard, both tools facilitate learning in a more efficient and effective manner.

Integrating technology into English learning (Technology-Based Learning) acts as a modern response, adapting to the needs of today's students. Technology's incorporation into English learning not only meets the requirements of 21st century education (Wei, 2022), but it also proves to be effective in making the classroom more interactive. This study will examine *Quizizz* and interactive PowerPoint in particular. The use of *Quizizz* is a part of the *gamification* approach, or applying game elements into a non-game setting, which has been widely known to help increase engagement and decrease anxiety in formative assessment (Maryo & Pujiastuti, 2022; Munawir & Hasbi, 2021). On the other hand, interactive *PowerPoint* rich visualizations can aid students in the learning process by providing material in an attractive and simplified manner, helping to demystify difficult concepts.

The effectiveness of gamified TBL relies primarily on its ability to elicit Learning Interest and Learning Engagement. Interest in learning refers to an individual's internal states of curiosity and willingness to engage in and learn about a specific topic (Mesterjo et al., 2024). Increased interest translates to learning engagement, which refers to the observable level of effort, attention, and active participation students demonstrate in learning situations (Hijrat & Asiyah, 2025; Pratiwi et al., 2025). Most importantly, the engagement students demonstrate is a result of motivation, which can be classified as extrinsic (motivated by prizes like points or good grades) or intrinsic (motivated by personal satisfaction and enjoyment of the activity). Research on gamified TBL using *Quizizz* has confirmed the platform's effectiveness in enhancing intrinsic and extrinsic motivation, especially in EFL learners (Jiménez-sánchez & Gargallo-camarillas, 2022; Razieh & Khayyer, 2006).

Students learning and practicing skills using electronic devices can facilitate classroom learning anytime. This flexible and efficient exploration of learning materials focused on specific topics is valuable. *Quizizz* empowers teachers to create learning materials and engage *quizzes*. It aids in motivating and reorienting the activities to be student (Yulistiarawati et al., 2021). According to Wei (2022) the use of laptops, projectors, and speakers aids in the learning environment. In learning activities, students are encouraged to participate in the learning activities and hold a positive learning

motivation. This engagement is fostered through interactive images and animations (Purwanto et al., 2016). Although game-like programs, such as *Quizizz*, are motivators and provide enjoyment, the motivational component is of primary importance for sustained learning success (Zhang & Crawford, 2024).

The Positive impact of learning and teaching technologies depends on coherence with students' long-term goals and academic objectives. The literature long attributed deep learning and motivation to students' Future Time Perspectives as well as the relevance of the topic to their Possible Selves (Ok, 2013), or the vision of the 'self' they aspire to become. Hence, with TBL the major learning challenge is to relate the momentary engagement and interest that competence needs provide, to long-term implications for the academic and professional goals they aspire to. The application of technology to reinforce instant engagement interactivity, as well as the internalization of long-term objectives, remains a defining factor for the implementation of TBL technology.

The effectiveness of *gamification* for fostering students' situational interest under *Quizizz* has also been affirmed in systematic reviews (Permana & Permatawati, 2023). However, the primary challenge of students' low motivation is often tied to their unawareness of the relevance of English to their future goals (Ok, 2013). While a number of studies continue to focus on the temporary engagement continuum, little research analyze the synergy of highly interactive *gamification* (*Quizizz*) and the organized visual aid (*Interactive PowerPoint*), and how that combination could serve to not only bolster situational interest but also strengthen students' appreciation of English as a tool for their possible selves in the future, particularly in the context of Senior High School in Indonesia. Therefore, this study aims to offer a complete study on the enhancement of Senior High School students' interest in English through the implementation of technology-based learning at SMA 1 Indrapuri, for the first time demonstrating TBL's potential to narrow the situational interest gap and the long-term utility awareness gap.

RESEARCH METHOD

This research applied a mixed-methods approach to understand in-depth students' interest in learning using technology-based learning. The mixed method combines the collection of quantitative and qualitative data in a single study.

Creswell (2018) explains that qualitative data is more open to respondent responses, while quantitative data usually includes closed responses such as those found in questionnaire instruments. Quantitative research collects data in numerical form,

qualitative research collects data in non-numerical form, while the mixed method collects data by combining quantitative and qualitative data (Johnson & Christensen, 2017).

Subjects and Location of Research

The research was conducted at SMA N 1 Indrapuri, located in Jln. Banda Aceh-Medan KM 27.4, Indrapuri District, Aceh Besar Regency. The research sample was class X IPAS 1 students, with a total of 28 students attending that day.

Data Collection Techniques

Data collection was carried out through two instruments: observation (for qualitative data) and Questionnaire (for quantitative data).

- **Direct Observation:** Use as a data collection method to identify students' learning interest in technology-based English language learning. It covered aspects such as students' active participation and use of technology like *PowerPoint* and *Quizizz*.
- **Questionnaire:** Distributed to 28 students to measure their perceptions and interest towards the use of technology in English learning. The questionnaire had 10 statements and used a Likert scale (e.g., Strongly Agree = 5, Agree = 4, etc.).

Data Analysis Techniques

The collected data was analyzed based on its type

- **Qualitative Data Analysis:** Data from the observation was analyzed to describe and interpret how the use of technology (*PowerPoint* and *Quizizz*) influenced the learning environment and the level of student engagement in the classroom.
- **Quantitative Data Analysis:** Data from the questionnaire was analyzed by converting Likert Scale answers into numerical values. Where each answer is converted into a numerical value (e.g., Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1). After that, the total score for each statement is summed up. Then, the maximum score is calculated by multiplying the number of respondents by the highest value on the scale:

$$\text{Maximum Score} = \text{Number of Respondents} \times \text{Highest Scale}$$

$$\text{Maximum Score} = 28 \times 5 = 140$$

Next, the percentage is calculated by dividing the total score obtained by the maximum score, then multiplying by 100 to convert it into a percentage:

$$Percentage = \left(\frac{Total\ Score}{Maximum\ Score} \right) \times 100$$

For example, in the case of statement 1: The total score for the statement "I enjoy learning English" is 106, and the maximum score is 140, so the percentage is calculated as follows:

$$Percentage = \left(\frac{106}{140} \right) \times 100 = 75.7\%$$

FINDINGS

Observation

In this research, observation is used as a data collection method to identify students' learning interest in technology-based English language learning. Observation was conducted using an unstructured observation sheet focusing on students' engagement indicators such as participation, attention, and interaction

Table 1. Student Observation Result

Activity to be observed	Description
Introduction	
1. Students enter the room on time.	Some students arrive late, but most students arrive on time and are ready to take part in the lesson.
2. Students are ready to start receiving lessons.	Most students are ready to take English lessons after praying and listening to the teacher's motivation.
3. Students participate in answering motivational questions given by the teacher.	Some students actively participated in answering motivational questions asked by the teacher, showing positive initial involvement. Some of the questions the teacher asks are "How are you today?" "Well, does anyone remember what we learned about last week?"
4. Students pay attention to the teacher's explanation of indicators and learning objectives.	Students pay close attention to the teacher's explanation regarding the lesson the teacher will teach, namely about pronouns. The teacher repeats a little of the previous material, namely possessive pronouns and the current material is personal pronouns. Students can respond and provide answers when the teacher asks questions about possessive pronoun material.
Core activities	
1. Students can focus on the teacher's explanation.	Some students arrive late, but most students arrive on time and are ready to take part in the lesson.
2. Students pay attention to the teacher's explanation.	Students listen attentively when the teacher presents the material about personal pronouns, ensuring they get the information they need.

Activity to be observed	Description
3. Students discuss actively during the learning process.	During the learning process, students are involved in active discussions with the teacher by answering questions from the teacher about the lesson. Students also ask the teacher about the material being taught, such as questions about when to use personal pronouns.
4. Students discuss actively during the learning process	Students are able to follow the learning process well, using technology introduced by the teacher, such as <i>PowerPoint</i> and <i>quizziz</i> . Power Point is used as a medium to present material about pronouns, while <i>Quizziz</i> is a website on Google's AI (artificial intelligence) which functions as a medium to help teachers create interesting assessments or quizzes for students.
Closing	
1. Students participate in summarizing learning material.	Students are involved in summarizing the learning material at the end of the session, helping them understand and remember the information they have learned.
2. Students can complete the tasks given by the teacher.	The teacher gives assignments to students to answer a quiz about personal pronouns on <i>Quizziz</i> . The results of the students' answers appear on the teacher's laptop and the students answer the quiz enthusiastically. The final score of the quiz is also displayed immediately. For all of the students' answers, none of them were correct but some were correct, but there were some students' answers show an understanding of the material."
3. Students can submit and complete assignments on time.	Students are able to collect and complete assignments on time, reflecting their responsibility and regularity in participating in learning.

The observation results show that the technology-based learning implemented in this class has proven to be effective, with the majority of students showing positive responses to various aspects of the teaching and learning process. This can be seen from the observation noted that explain the situation in the classroom during the technology-based learning process. The use of media such as *PowerPoint* and *quizziz* has succeeded in increasing student involvement and making the learning process more interactive and interesting. This can be seen from students' active participation and use of the technology provided. The observation noted present data on students focus during learning, the question-and-answer interactions between students and the teacher, and the students' enthusiasm in doing assignments using *Quizziz*.

Questionnaire

Based on the analysis of questionnaire data, it can be concluded that technology has a significant role in increasing students' interest and involvement in learning English. The table below shows that the majority of students have a high perception of the use of technology, although there is one statement that falls into the "Middle" category.

Table 2. The Students' Perceptions Category

No	Statement	%	Category
1	I enjoy learning English	75.7%	High
2	Studying English is substantial to me so that I can understand English speaking films, videos, TV or radio.	70.7%	High
3	Studying English is important for reading English books, newspapers or magazines.	75%	High
4	Studying English is important to me, because I may need it later (for job, studies).	58.5%	Middle
5	I always re-study the English learning material given by the teacher.	67.1%	High
6	I noticed "technology-enhanced teaching/ learning changes the teachers' mode of pedagogy."	65.7%	High
7	I prefer to learn English using technology such as a laptop rather than books.	75.7%	High
8	I like technology as a teaching-learning tool in my classroom.	77.1%	High
9	Using technology in learning English makes me interested in learning English.	74.2%	High
10	Technology-mediated learning motivates new learning situations.	70.7%	High

The results of this percentage calculation are then categorized into "Very High," "High," "Moderate," "Low," or "Very Low" based on the established percentage ranges, such as 81%-100% for the "Very High" category, 61%-80% for the "High" category, 41%-60% for the "Moderate" category, 21%-40% for the "Low" category, and 0%-20% for the "Very Low" category. The first statement falls into the "High" category with a percentage of 75.7%.

The conclusions drawn based on the percentage categories above highlight the important role of technology in increasing students' interest and involvement in learning English. The majority of students showed a positive perception of the use of technology, as indicated by the number of statements falling into the "High" category. However, there is one statement, namely the importance of learning English for the future (e.g., for jobs or further studies), which only received the "Middle" category. This shows that although technology can help increase student interest, there is still room for improvement in making English more interesting than other subjects.

DISCUSSIONS

This study aims to explore students' learning interest in English through the implementation of Technology-Based Learning. Generally, the findings from the mixed-methods approach confirm that TBL (Technology-Based Learning) has great potential in enhancing students' interest and engagement, yet it also highlights challenges related to intrinsic motivation and the consistency of its impact.

Increased Engagement and Learning Interaction (Qualitative):

The qualitative observation results consistently show that the use of technology, particularly in digital platforms and hardware, created a more interactive and engaging learning environment.

The Role of Specific Technologies: Teachers used laptops and projectors with online platforms such as PowerPoint and *Quizizz* for instruction and assessment. PowerPoint presentations helped in the construction of instructional materials by providing visual aids that enhanced students' comprehension and motivated them to learn. In contrast, *Quizizz's* game-based approach enhanced students' motivation during assessment. The ranking feature of *Quizizz* created a classroom environment that promoted healthy competition and motivated students to study for the assessment.

Active Student Involvement: The increase in student engagement in the classroom as evident by their enthusiasm to start lessons, participation during discussions and Q&As, and timely submission of assignments was particularly noteworthy. *Quizizz*, most notably, was successful in enhancing students' engagement as well as streamlining teachers' lesson delivery and assessment.

The platform's gamified features account for the enthusiastic and positive responses from students towards TBL. This is well substantiated in the literature including reviews by Zhang and Hasim (2023) and Indra Maulana et al. (2024). *Gamification* is innovative and captivating and motivates, interests, and engages EFL learners (Redjeki & Muhajir, 2021). Regarding *Quizizz* specifically, Mesterjon et al. (2024) and Heriyanto et al. (2024) provide empirical evidence for its effectiveness in increasing students' interest in different subjects as well as their engagement in the overall learning process. The instant feedback, competitive leader-boards, and overall design of the platform contributed to this success. As such, *Quizizz* and similar platforms are ranked as tools for Interactive Engagement Strategies (Hijrat & Asiyah, 2025; Yezsica Pratiwi et al., 2025) and effectively promote students' attention and participation during lessons.

The literature regarding *gamification* has been consistent. The increase in active participation recorded during *Quizizz* sessions takes place because the game components engender an atmosphere of enjoyment and competition, which positively relates to the motivation of students (Hardianti, 2023). This has been strengthened in the literature that has empirically demonstrated the incorporation *Quizizz* as a game changes students' participation and improves performance in the English as a Foreign Language (EFL) context (Munawir & Hasbi, 2021). This suggests that the psychological components of *gamification* do not merely serve evaluative purposes, and provides evidence that the psychological components serve to enhance students' flow and concentration.

Positive Perception and Identification of Motivation (Quantitative):

The quantitative data collected via questionnaires from 28 respondents reinforces the observation findings on TBL by showing a very high level of acceptance.

High Acceptance Level: Overall, most of the statements regarding interest and positive view on technology fell within the “high” category.

- Integration of technology in the classroom has a very high acceptance rate, as indicated by a total of 77.1% of respondents stating, “I like technology as a teaching-learning tool in my classroom.”
- Support for this is with 75.7% of students stating they enjoy learning English with the use of technology and 74.2% stating that technology interests them in learning English.
- Evidence of a clear preference for modern methods is illustrated by the 75.7% of students that stated a preference for learning English with technology (laptop) as opposed to books.

The findings correlate with Liton's (2015) conclusion that technology has a greater potential to motivate students than the traditional methods of learning. The use of technology in English learning as a potential to be more effective educational tool.

Nevertheless, the questionnaire analysis also illustrated one critical element that falls outside the “high” category.

Intrinsic Motivation Gap: “Studying English is important to me, because I may need it later (for job, studies).” statement is placed in the “middle” category, with 58.5%.

While this score reflects the long-term importance of English at a “middle” level, it also demarcates a vital challenge for the seamless incorporation of advanced technology. To illustrate, while *gamification* is technology that captures and holds situational interest

(momentary motivation) and excitement of the task, it will not, with any certainty, result in sustained deep motivation that is accrued from the value of the content (Huseinović, 2023). This observation is a consequence of *gamification* that, while excellent for engagement, requires considerable instructional effort to bridge the gap between students and their academic and professional goals. The aim is to do more than intersperse pleasurable activities with academic content. It is also necessary to illuminate the benefits of the learning for the students in their future. If this focus is absent, the benefits of TBL will likely only reach the students while they are actively engaged.

There is a lack of focus on how much engagement TBL provides and the relevance of building students' long-term intrinsic motivation in regard to the relevance of English for their career in the future. Based on Purmama et al (2021) , motivation is one of the key fundamentals in the learning process, and these findings suggest that technology alone may not work without intrinsic motivation coming from the learners themselves.

Teaching and Implementation Challenges

The integration of qualitative and quantitative data confirms that the engagement of technology is a significant factor in enhancing students' interest in learning. However, this work also identifies discrepancies in perceptions and interest, such that, in this case, some students appear indifferent or impacted by this approach.

Individual Differences and The Teacher's Role: This variation means TBL is not a panacea for all students. Consequently, the teacher's role becomes extremely important in the further integration of technology and exploitation to address the varying learning styles and patterns. Teachers must relentlessly refine and expand their frameworks so that all students can ideally engage with TBL.

Long Term Challenges and Recommendations: to optimize TBL, focus must be given to two primary elements:

Awareness Development (motivation): to a greater extent, there should be more tailored instructional approaches to bridge the gap between the English materials and students' ultimate objectives.

Infrastructure and Training: TBL hinges on functional resources. Appropriate materials (hardware and a reliable internet connection) and adequate teacher and student training in technology are essential to its full realization. As discussed by Larasati and Arifin

(2022), the integration of technology in teaching is a must so that teachers address students' differing learning styles and preferences.

The implementing instructional frame-works emphasizes the notion that technology is not a one-size-fits-all approach, and serves as a tool whose successfulness is determined by the context in which it is used. Educators must not only use *Quizizz* for formative assessment, but also explore flexible ways in which it can be used to develop higher-order skills like critical thinking (Yezsica Pratiwi et al., 2025). Given the findings from this study, there is a need to focus on the design and delivery processes. The use digital resources must align with the lesson objectives. Educators must be able to strike the correct balance, where the use of technology (gamified *Quizizz* features) does not detract from the lesson objectives and serves to engage students meaningfully. It is the educator's role to shift technology to engage the students and deliver English as a lesson meaningfully as a tool for learning and self-expression.

The findings indicate that TBL at SMAN 1 Indrapuri is promising but will only be maximized through conscious integration and individualized instructional approaches that tap into students' intrinsic motivation.

CONCLUSION

This study focused on determining how technology-based learning can optimize Senior High School students' interest in learning the English Language. This is from the analysis on mixed methods data (observations and questionnaires) on 28 students at SMA 1 Indrapuri. From the study, it can be deduced that technology-based learning, namely the use *Quizizz* and interactive *PowerPoint* presentations, served to increase the participants' interest, appreciation, and active involvement in the engagement and participation in the learning-teaching activities.

The results from the research lead to the following conclusions:

- There was a significant improvement in students' participation and engagement during the learning activities that involved the use of *gamification* and instruction visualized with multimedia technology.
- The majority of students had extremely positive attitudes towards the use of digital and online resources as learning tools, indicating that the learning framework stimulated both their intrinsic and extrinsic motivation towards learning.
- Learning activities designed with technology were able to reduce the dullness and predictability characteristic of traditional classroom instruction.

The findings support the use of technology, especially *gamified* learning tools like *Quizizz*, to assist English teachers in the digital age. This is to combat the problem of decreased student interest and improve the effectiveness of teaching in the digital age.

The Limitation of Study

Although this study provides insight into the effectiveness of technology-based learning in increasing students' interest in English, there are several limitations that need to be noted.

- First, this study was limited to one class, comprising 28 respondents, and this may raise question regarding the relevance of the findings to other contexts, and other populations.
- Secondly, this study focused on *PowerPoint* presentations, laptops, *Quizizz*, *projectors* and therefore, other technology tools and platforms that could be used in the learning process were excluded, and this could mean the findings do not capture the full implications of different technology tools as they relate to student engagement.
- Thirdly, the limited timeframe for observations and data collection means I was unable to study the long term impact of technology-based learning on student interest and performance, and this is an important element in grasping the full implications of the technology over an extended period.
- Finally, the study used students' self-reported data to capture their perceptions and engagement on the various technology tools, and this may not accurately reflect reality as students may have provided data that is socially oriented instead of their authentic sentiment.

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