

The Analysis of Technology-Based Assessment Employed by English Teachers at SMA Negeri 1 Seririt

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ABSTRACT

Implementation of Technology-Based Assessment (TBA) in classroom assessment practices remains influenced by various pedagogical and contextual factors. There is a need for more context-specific investigations that examine both implementation practices and challenges in authentic educational environments. This study aimed to investigate the implementation of Technology-Based Assessment in English language learning and identify the challenges encountered by teachers during its implementation. Employing a basic qualitative research design, the study was conducted at SMA Negeri 1 Seririt, Bali, Indonesia. Four English teachers participated in the study. Data were collected through document analysis, classroom observations, and semi-structured interviews and were analyzed using data reduction, data display, and conclusion drawing procedures. The findings revealed that teachers implemented Technology-Based Assessment through various digital platforms, including Google Forms, Wayground, Zep Online, Padlet, and Google Classroom. These technologies were primarily utilized for diagnostic and formative assessment purposes to monitor student progress, facilitate feedback, and enhance student engagement. The study also identified several challenges, including academic integrity issues, technical and infrastructure limitations, and concerns regarding assessment validity and reliability. The findings suggest that while TBA offers substantial benefits for supporting learning and assessment processes, its effective implementation requires adequate technological infrastructure, assessment literacy, and balanced integration with conventional assessment approaches to ensure valid and meaningful learning outcomes.

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INTRODUCTION

Assessment is an integral component of the educational process because it provides information regarding students' learning progress, achievement, and difficulties. In English language learning, assessment serves not only as a tool for measuring learning outcomes but also as a mechanism for supporting continuous improvement in teaching and learning practices. According to Bez et al. (2025), assessment plays a crucial role in generating valid information about students' understanding and learning challenges, enabling teachers to make informed pedagogical decisions and support the development of students' competencies. Similarly, Yunita (2019) emphasize that effective assessment contributes significantly to improving learning

outcomes when it is integrated into the teaching process and provides meaningful feedback for learners.

The rapid advancement of digital technology and the demands of 21st-century education have transformed educational practices worldwide, including assessment methods. Technology-Based Assessment offers numerous advantages compared to conventional assessment methods. Nieminen et al. (2023) argue that TBA enhances assessment efficiency through automated scoring systems, improved assessment design, and real-time data collection. Likewise, Namaziandost et al. (2020) highlights that digital assessment enables immediate feedback, reduces administrative workload, and supports more accurate tracking of student performance. Through digital platforms, teachers can collect and analyze learning data more efficiently, allowing them to identify students' strengths and weaknesses promptly. Furthermore, technology-enhanced assessments can improve students' engagement and motivation by incorporating multimedia elements, interactive activities, and gamified features (Namaziandost et al., 2020).

In the Indonesian educational context, the adoption of digital technology has accelerated following educational reforms promoting digital literacy and technology integration in schools. The Ministry of Education, Culture, Research, and Technology encourages schools to utilize digital technologies to enhance teaching, learning, and assessment processes. Consequently, many schools have begun implementing Technology-Based Assessment using platforms such as Google Forms, Wayground (formerly Quizizz), Kahoot!, Moodle, and other learning management systems. These platforms provide practical solutions for creating quizzes, examinations, assignments, and formative assessments while facilitating efficient data management and analysis (Adelia et al., 2021).

SMA Negeri 1 Seririt is one of the schools that has implemented Technology-Based Assessment in English language learning. The school primarily utilizes Google Forms and Wayground as digital platforms for conducting assessments. These platforms offer various features, including multiple-choice questions, short-answer responses, multimedia integration, automatic scoring, and response analytics. According to Adelia et al. (2021), Google Forms provides teachers with comprehensive assessment data through response summaries, spreadsheet integration, and performance analysis features, which support data-driven decision-making in educational settings. Preliminary interviews conducted with English teachers at SMA Negeri 1 Seririt revealed that the implementation of Google Forms and Wayground has improved efficiency and effectiveness in classroom assessment practices. Teachers use these platforms to administer quizzes, assignments, and examinations while incorporating images, audio recordings, and visual materials into assessment tasks. The integration of assessment results with Google Sheets further facilitates data organization and analysis. However, despite these advantages, several challenges remain. Teachers reported difficulties related to unstable internet connectivity, technical disruptions during assessment administration, and limitations in digital infrastructure, which occasionally hinder the effectiveness of technology-based assessments.

Beyond technical benefits, the implementation of TBA also contributes to the development of students' digital literacy skills. Preliminary findings indicate that students at SMA Negeri 1 Seririt demonstrate adequate digital literacy skills, enabling them to participate effectively in technology-enhanced learning and assessment activities. Furthermore, Technology-Based Assessment supports formative assessment practices, which play a crucial role in improving learning outcomes. Namaziandost et al. (2020) found that technology-assisted formative assessment enhances student engagement, supports self-reflection, and facilitates personalized learning experiences. Through digital platforms, teachers can provide immediate feedback and identify learning difficulties more effectively, thereby improving instructional quality and student achievement. The effectiveness of TBA has been supported by numerous empirical studies. van den Berg and Papadopoulos (2024) reported that both teachers and students perceive technology-enhanced assessment positively due to its efficiency, convenience, and ability to provide rapid feedback. Similarly, Kumar et al. (2020) found that positive attitudes toward digital assessment

technologies contribute to successful online and blended learning environments. Research conducted by Vittorini et al. (2021) further demonstrated that technology-based summative assessments improve grading accuracy, reduce human error, and increase assessment reliability. Collectively, these studies suggest that TBA has substantial potential to improve assessment quality and educational effectiveness.

Despite the growing body of literature on Technology-Based Assessment, several research gaps remain. First, existing studies predominantly focus on students' perceptions, attitudes, or acceptance of digital assessment technologies, while relatively few investigations examine how teachers actually implement TBA in real classroom contexts. Second, research on TBA implementation in English language classrooms at the senior secondary school level remains limited, particularly in Indonesian educational settings. Third, although technical and pedagogical challenges are frequently acknowledged, studies that comprehensively explore the obstacles encountered by teachers during the implementation of TBA are still insufficient. Consequently, there is a need for more context-specific investigations that examine both implementation practices and challenges in authentic educational environments.

Addressing these gaps is important because successful implementation of TBA depends not only on technological availability but also on teachers' pedagogical competence, digital literacy, institutional support, and contextual factors. Understanding how teachers integrate technology into assessment practices can provide valuable insights for improving assessment strategies, enhancing teacher professional development, and supporting educational policy initiatives related to digital transformation. Therefore, this study investigates the implementation of Technology-Based Assessment by English teachers at SMA Negeri 1 Seririt. Specifically, it explores the digital platforms utilized, the types of assessments conducted, and the ways in which technology supports formative assessment practices. In addition, the study examines the practical and pedagogical challenges encountered by teachers during the implementation process.

The novelty of this study lies in its comprehensive examination of Technology-Based Assessment implementation from the teachers' perspective within a real English classroom context at the senior secondary school level. Unlike previous studies that primarily focus on students' perceptions or general benefits of technology integration, this study combines an analysis of assessment practices, formative assessment implementation, digital literacy considerations, and the practical and pedagogical challenges faced by teachers. Consequently, the findings are expected to contribute to the growing literature on technology-enhanced assessment and provide practical recommendations for improving assessment practices in English language education. The study addressed the following research questions:

1. How is Technology-Based Assessment implemented by English teachers at SMA Negeri 1 Seririt?
2. What challenges do English teachers encounter in implementing Technology-Based Assessment?

REVIEW OF LITERATURE

Pradnyadewi et al. (2022) investigated the implementation of digital assessment tools, including Google Classroom, Google Forms, WhatsApp, and Zoom, in English language learning. Their findings revealed that these technologies facilitated various formative assessment strategies, such as self-assessment, peer assessment, and teacher feedback. The study showed that teachers could effectively integrate assessment rubrics into online learning environments and provide both written and verbal feedback to support student learning. The use of multiple digital platforms also enabled teachers to monitor student progress continuously and encourage active learner participation. Similarly, Sanjaya et al. (2023) examined the use of Quizizz as a Technology-Based Assessment tool in junior high school classrooms. The findings indicated that Quizizz effectively supported Assessment for Learning principles by providing immediate feedback and enabling

teachers to evaluate students' understanding during the learning process. The interactive and gamified nature of Quizizz increased student motivation and engagement while allowing teachers to identify learning difficulties and adjust instructional strategies accordingly. These findings support the argument that TBA can function not only as an assessment tool but also as a means of enhancing learning experiences.

On the other hand, Wahyuni et al. (2023) found that teachers utilized Learning Management Systems (LMS) and interactive digital media to facilitate online writing assessments. Through these platforms, students could complete assignments, receive feedback, and improve their writing skills in a more flexible learning environment. The study emphasized the importance of digital platforms in promoting autonomous learning and supporting continuous assessment practices. Similarly, Dewi et al. (2023) explored teachers' implementation of Google Forms and Wayground (formerly Quizizz) for classroom assessment. The findings revealed that teachers primarily used these platforms for quizzes, assignments, and examinations due to their practicality, automated scoring features, and ease of use. However, the study also identified several challenges, including limited technological knowledge among teachers and students, insufficient digital literacy skills, and technical issues that restricted the full utilization of these assessment technologies. These findings suggest that successful implementation of TBA requires not only technological infrastructure but also adequate user competence and training. Another study conducted by Anugraha et al. (2023) reported that teachers integrated multiple digital platforms such as Quizizz, YouTube, and WhatsApp into their assessment practices. This study demonstrated that TBA can be implemented through a combination of technologies that support different language skills and assessment objectives.

One commonly used platform is Moodle, particularly its workshop feature, which facilitates online peer assessment activities. Kumar et al. (2020) found that Moodle-based peer assessment encourages student collaboration, critical thinking, and active participation in evaluating academic work. The study also revealed that students generally exhibit positive attitudes toward technology-supported peer assessment because it promotes interaction and reflection. Another prominent form of TBA in higher education is the use of electronic portfolios (e-portfolios). Kusuma et al. (2021) reported that e-portfolios serve as effective formative assessment tools by enabling students to document learning progress, reflect on their achievements, and demonstrate competency development over time. Unlike traditional assessments that focus primarily on final outcomes, e-portfolios emphasize continuous learning and self-reflection, making them particularly valuable in learner-centered educational environments.

Furthermore, Kusuma and Waluyo (2023) investigated the implementation of AI-assisted assessment systems and found that automated assessment tools can enhance grading efficiency and consistency while reducing teachers' workload. Similarly, Alsalem (2024) explored lecturers' perceptions of AI-based grading tools such as CoGrader and reported generally positive attitudes toward the technology. Lecturers believed that AI-assisted assessment could improve assessment efficiency and provide timely feedback; however, concerns regarding accuracy, fairness, transparency, and ethical considerations remained significant issues that require further investigation. Also, Namaziandost et al. (2020) found that technology-supported formative assessment contributes to improved student learning outcomes by providing immediate feedback, facilitating self-reflection, and supporting personalized learning. Likewise, research by Vittorini and Tonelli (2021) demonstrated that technology-based summative assessment improves grading accuracy, reduces human error, and increases assessment reliability. These findings suggest that TBA has substantial potential to improve both assessment quality and learning effectiveness when implemented appropriately.

METHOD

This study employed a basic qualitative research design to explore the implementation of Technology-Based Assessment (TBA) in English language learning and identify the challenges

encountered by teachers during its implementation. Basic qualitative research focuses on understanding how individuals interpret and make meaning of their experiences in a particular context (Merriam & Tisdell, 2016). This approach was selected because the study aimed to gain an in-depth understanding of teachers' experiences, practices, and perspectives regarding the use of technology in classroom assessment rather than to measure variables quantitatively. In this study, the implementation of Technology-Based Assessment was examined in its authentic educational context without manipulating any variables. The researcher served as the primary instrument for data collection and interpretation, while triangulation of data sources and methods was employed to enhance the credibility and trustworthiness of the findings.

This study was conducted at SMA Negeri 1 Seririt, located on Jalan Diponegoro No. 100, Seririt District, Buleleng Regency, Bali, Indonesia. The school was selected purposively because it has actively integrated digital technologies into teaching and assessment practices, particularly through the use of Google Forms and Wayground (formerly Quizizz). Meanwhile, the participants of this study consisted of English teachers and students at SMA Negeri 1 Seririt. The primary participants were four English teachers who actively implemented Technology-Based Assessment in their classrooms. These participants included two male teachers and two female teachers who taught students at Grades 10, 11, and 12. The teachers were selected using purposive sampling because they possessed direct experience in designing, administering, and evaluating technology-based assessments. In addition to teacher participants, classroom observations involved students from Grades 10, 11, and 12 who participated in English learning activities utilizing Technology-Based Assessment. Students were observed to understand how TBA was implemented in authentic classroom situations and how they interacted with digital assessment platforms. Thus, four English teachers served as primary participants, while students were merely observed during classroom activities.

This study utilized both primary and secondary data sources. Primary data were collected from English teachers who implemented Technology-Based Assessment, classroom observations of English learning activities involving TBA, interview responses regarding implementation practices and challenges. Meanwhile, secondary data were obtained from documents related to assessment implementation, including lesson plans, teaching modules, assessment plans, student assessment results, digital assessment records, documentation of assessment activities. These documents were used to support and verify findings obtained through interviews and observations.

Three instruments were employed to collect data. The document analysis checklist was developed based on the Technology-Based Assessment framework proposed by Pásztor et al. (2026), which emphasizes the importance of valid, structured, and reliable digital assessment systems. The document analysis enabled the researcher to identify how Technology-Based Assessment was planned and integrated into classroom instruction. Next, the observation sheet was developed based on the technology-enhanced formative assessment framework proposed by Namaziandost et al. (2020). Classroom observations focused on the actual implementation of TBA during English learning activities. Field notes and descriptive records were utilized to document observation findings comprehensively. Last, semi-structured interviews were conducted to obtain detailed information regarding teachers' experiences with Technology-Based Assessment. The interview protocol was developed based on the studies of Hasumi and Chiu (2024), Mjenda and Kyaruzi (2025), and Zlatkin-Troitschanskaia et al. (2019), which emphasize technology acceptance, teacher perceptions, contextual factors, and cognitive responses toward digital assessment. All interviews were conducted with participants' consent and were audio-recorded and transcribed for analysis.

Data were collected through three complementary methods, such as document analysis, classroom observation, and interviews. The collected data were analyzed using the qualitative data analysis framework proposed by Merriam and Tisdell (2016), consisting of three stages, such as data reduction, data displays, conclusion drawing and verification. To enhance the credibility and trustworthiness of the findings, methodological triangulation was employed. Triangulation was

conducted by comparing information obtained from multiple sources and methods, including interviews, observations, and document analysis. Through methodological triangulation, the study increased the credibility, consistency, and validity of its findings regarding the implementation of Technology-Based Assessment in English language learning.

FINDINGS AND DISCUSSION

Findings

The Implementation of Technology-Based Assessment in English Language Learning

The findings revealed that English teachers at SMA Negeri 1 Seririt integrated various digital technologies into the assessment process to support diagnostic and formative assessment activities. The implementation of Technology-Based Assessment (TBA) was identified through document analysis, classroom observations, and interviews. Five digital platforms were employed by the teachers, namely Google Forms, Wayground, Zep Online, Padlet, and Google Classroom. These technologies were utilized to facilitate assessment administration, monitor student progress, provide feedback, and enhance student engagement during English language learning.

Table 1. Technologies Used by Teachers in English Language Learning

Technology	Teacher 1	Teacher 2	Teacher 3	Teacher 4
Google Forms	✓	✓	✓	✓
Wayground	✓	–	–	–
Zep Online	✓	–	–	–
Padlet	–	–	–	✓
Google Classroom	–	–	✓	–

As presented in Table 1, all teachers incorporated digital technologies into their assessment practices. Although Google Forms was the most widely adopted platform, several teachers complemented its use with other applications that served specific assessment purposes. The integration of multiple platforms demonstrates teachers' efforts to align assessment practices with students' learning needs and classroom contexts. Classroom observations further confirmed these findings. Students regularly used smartphones to access assessment activities provided through digital platforms. Teachers distributed quizzes, assignments, and discussion tasks electronically and monitored student participation throughout the learning process. The use of technology enabled immediate access to student responses and facilitated timely feedback at the end of instructional sessions.

Google Forms in Technology-Based Assessment

Google Forms emerged as the primary platform used for technology-based assessment. The platform was mainly utilized to administer diagnostic and formative assessments because it allowed teachers to distribute quizzes efficiently, collect responses automatically, and generate assessment results immediately.

Table 2. Implementation of Google Forms in Assessment Activities

Technology	T1	T2	T3	T4	Diagnostic	Formative	Summative
Google Forms	✓	✓	✓	✓	✓	✓	–

Document analysis indicated that teachers used Google Forms to administer quizzes, gather student responses, and perform automatic grading. Classroom observations showed that students accessed assessment links shared by teachers and completed multiple-choice and short-answer tasks independently. Teachers monitored students' progress and reviewed responses at the

conclusion of the lesson. Interview data highlighted the practicality of Google Forms. Teachers reported that automatic data collection and grading reduced administrative workload and improved assessment efficiency. The platform also enabled teachers to provide prompt feedback while allowing students to view their results immediately after completing assessment tasks. These findings suggest that Google Forms plays a significant role in streamlining assessment procedures and supporting continuous assessment practices.

Wayground in Formative Assessment

Wayground was used specifically for formative assessment activities. The platform provided interactive quizzes that enabled teachers to evaluate students' understanding while simultaneously increasing student motivation and participation.

Table 3. Implementation of Wayground in Assessment Activities

Technology	T1	T2	T3	T4	Diagnostic	Formative	Summative
Wayground	✓	-	-	-	-	✓	-

Document analysis demonstrated that Wayground offered features such as automatic score recording and ranking displays, which supported the assessment process. Observations revealed that teachers used assessment data generated by the platform to identify learning difficulties and determine appropriate follow-up instructional strategies. The platform also enabled teachers to monitor student performance in real time and provide immediate feedback. Interview findings suggested that students were more enthusiastic when assessments were delivered through game-based activities. The competitive elements embedded in the platform encouraged participation and sustained engagement throughout the assessment process. Therefore, Wayground contributed not only to assessment but also to increased student motivation and active learning.

Zep Online in Formative Assessment

Zep Online was also implemented as a formative assessment tool. The platform incorporated game-based learning elements that provided students with a more engaging assessment experience.

Table 4. Implementation of Zep Online in Assessment Activities

Technology	T1	T2	T3	T4	Diagnostic	Formative	Summative
Zep Online	✓	-	-	-	-	✓	-

Document analysis indicated that Zep Online was used to monitor students' performance through mission-based activities and interactive challenges. Observation data showed that teachers continuously tracked student progress through the platform and utilized assessment results to identify areas requiring additional explanation and practice. Furthermore, teachers provided immediate guidance when students encountered difficulties during the activities. The platform encouraged active participation because students were required to complete tasks sequentially in order to progress through different stages. Interview results also suggested that the game-based environment increased students' interest and motivation. Consequently, Zep Online supported both student engagement and instructional decision-making.

Padlet in Diagnostic and Formative Assessment

Padlet functioned as a collaborative assessment platform that supported both diagnostic and formative assessment activities. The application was primarily used to collect students' ideas, opinions, and reflections throughout the learning process.

Table 5. Implementation of Padlet in Assessment Activities							
Technology	T1	T2	T3	T4	Diagnostic	Formative	Summative
Padlet	-	-	-	✓	✓	✓	-

Document analysis revealed that Padlet was used to assess students' prior knowledge before instruction and to facilitate brainstorming and reflection during learning activities. Through students' posts and comments, teachers were able to monitor conceptual development and identify misconceptions. Observation findings showed that teachers actively reviewed students' contributions and adjusted instructional activities based on emerging responses. Feedback was continuously delivered through comments, reactions, and rating features. The real-time nature of the platform enabled both teachers and students to interact directly, creating a dynamic assessment environment. Interview data further confirmed that Padlet facilitated collaborative learning while supporting assessment and feedback processes.

Google Classroom in Diagnostic and Formative Assessment

Google Classroom was implemented as an assessment management platform that facilitated assignment collection, discussion, and feedback delivery.

Table 6. Implementation of Google Classroom in Assessment Activities							
Technology	T1	T2	T3	T4	Diagnostic	Formative	Summative
Google Classroom	-	-	✓	-	✓	✓	-

The document analysis showed that Google Classroom was used to collect information about students' prior knowledge, manage assignments, and facilitate classroom discussions. The platform enabled teachers to track students' learning progress through submitted tasks, quizzes, and discussion forum participation. Observation data demonstrated that teachers continuously monitored student submissions and discussion activities to identify learning needs and determine follow-up instructional actions. Feedback was provided through the comment feature, allowing students to review suggestions and improve their work over time. The platform also supported continuous communication between teachers and students beyond classroom sessions. Interview findings indicated that Google Classroom simplified material distribution, assignment collection, and assessment management. As a result, the platform contributed to a more organized and efficient assessment process while promoting student participation in both learning and assessment activities.

Challenges Encountered by English Teachers in Implementing Technology-Based Assessment

The findings revealed that although technology-based assessment (TBA) offers numerous advantages for English language learning, teachers encountered several challenges during its implementation. Through triangulation of document analysis, classroom observations, and interviews, three major categories of challenges were identified: academic integrity issues, technical and infrastructure challenges, and challenges related to assessment validity and reliability.

Academic Integrity Issues

One of the most significant challenges reported by teachers was maintaining academic integrity during technology-based assessment activities. The findings indicated that students frequently relied on external digital resources while completing assignments and assessments. Teachers observed that students often used search engines and translation applications to obtain answers rather than relying on their own language knowledge and skills. As a result, assessment outcomes sometimes reflected students' ability to access digital tools rather than their actual

English proficiency. Interview findings revealed that teachers were particularly concerned about students' dependency on Google Search and Google Translate during assessment activities. Although these applications assisted students in producing answers quickly, teachers questioned the authenticity of the results obtained through technology-based assessments. To address this issue, some teachers conducted follow-up interviews after online assessments to verify whether students truly possessed the competencies reflected in their scores. Document analysis further showed that certain teachers limited the use of technology for writing assessments because they believed that students should demonstrate their own language production abilities without technological assistance. These findings suggest that the availability of external digital resources creates challenges in ensuring that assessment results accurately represent students' actual competencies.

Another academic integrity concern involved the use of Artificial Intelligence (AI). Interview data demonstrated that teachers were increasingly worried about students utilizing AI-powered applications to generate answers automatically. Teachers explained that AI systems can produce highly sophisticated and grammatically accurate responses within seconds, making it difficult to determine whether submitted work genuinely reflects students' understanding. While teachers acknowledged the educational benefits of AI, they expressed concerns that its misuse during assessment activities could compromise the authenticity of student work and reduce the accuracy of assessment results. Consequently, AI was perceived as a growing challenge that may affect teachers' ability to evaluate students' actual learning achievements.

In addition, teachers reported incidents involving the sharing of screenshots and distribution of assessment answers among students. Interview findings indicated that some students captured screenshots of quiz questions and shared them through instant messaging applications with classmates who had not yet completed the assessment. This practice undermined the credibility of assessment results because students could gain unfair access to answers before participating in the assessment themselves. Teachers occasionally addressed this issue by repeating assessments using alternative platforms or conducting direct interviews to confirm students' understanding of the material. These findings demonstrate that digital communication technologies can facilitate academic misconduct when appropriate monitoring mechanisms are not in place.

Technical and Infrastructure Challenges

The implementation of technology-based assessment was also affected by several technical and infrastructure-related challenges. One of the most frequently reported obstacles was unstable internet connectivity. Observation data showed that many assessment platforms required reliable internet access to function effectively. However, students occasionally experienced connectivity problems when using personal mobile data or when school internet services were unstable. These disruptions delayed assessment activities and reduced instructional efficiency. Interview findings further confirmed that internet connectivity problems frequently interfered with students' ability to access quizzes, submit assignments, and participate in online assessment activities. In some cases, students were unable to submit their work within the designated timeframe because of network disruptions. Consequently, some teachers chose not to implement technology-based assessment for high-stakes summative assessments, where time limitations and assessment security are particularly important. These findings indicate that reliable internet access remains a critical prerequisite for successful implementation of technology-based assessment.

Another challenge concerned the availability and compatibility of students' devices. Interviews revealed that not all students possessed suitable devices for participating in technology-based assessments. Some students occasionally forgot to bring their smartphones to class, while others used devices that were incompatible with specific digital applications. Observation findings demonstrated that device-related issues directly affected student participation because some students were unable to access assessment platforms or complete assigned activities. As a result,

teachers often had to provide alternative arrangements to ensure that all students could participate equally. Document analysis also indicated that teachers preferred selecting platforms that could be accessed directly through web browsers rather than applications requiring installation, thereby reducing compatibility issues across different operating systems.

Furthermore, classroom observations suggested that unrestricted access to mobile devices during assessment activities increased opportunities for academic misconduct. Students could easily switch between assessment platforms and communication applications, creating additional challenges for teachers attempting to monitor student behavior. These findings highlight the complex relationship between device accessibility and assessment security within technology-enhanced learning environments. Technical malfunctions involving digital equipment and platforms also emerged as a recurring challenge. Interview data revealed that teachers occasionally experienced difficulties operating technological devices during lessons. Observations showed instances where teachers encountered problems connecting laptops to projectors or accessing digital resources required for assessment activities. These technical difficulties sometimes interrupted classroom instruction and reduced the effectiveness of technology-based assessment implementation. The findings therefore suggest that both technological infrastructure and teachers' technical competencies play important roles in ensuring successful integration of digital assessment tools.

Challenges in Assessment Validity and Reliability

The findings also revealed concerns regarding the validity and reliability of assessment results generated through technology-based assessment. One major issue involved writing assessments. Teachers reported difficulties determining whether students' online assessment scores accurately reflected their actual writing abilities. Interview findings indicated that some students achieved exceptionally high scores in digital writing assessments; however, when questioned directly through interviews or face-to-face interactions, their demonstrated language proficiency did not correspond with those results. Document analysis showed that some teachers preferred combining digital assessments with traditional assessment methods, particularly for writing tasks. Interviews, classroom observations, and paper-based tests were used to verify assessment outcomes and obtain more authentic evidence of student learning. These findings suggest that maintaining assessment validity remains a significant challenge when teachers are unable to directly supervise students throughout the assessment process.

Another issue concerned the limitations of automated scoring systems. Although automated grading significantly increased efficiency by providing immediate results, teachers expressed concerns about the accuracy of these systems. Interview data revealed that automated scoring mechanisms often failed to recognize correct responses when students used different capitalization, punctuation, spacing, or formatting from the predefined answer key. Consequently, students occasionally received incorrect scores despite providing accurate answers. This issue was particularly problematic in language learning contexts, where multiple variations of correct responses may exist. Therefore, while automated grading offers substantial practical advantages, its limitations can affect the reliability of assessment outcomes. To address these concerns, teachers reported combining technology-based assessment with conventional assessment approaches. Interview findings demonstrated that teachers believed digital assessment alone could not provide a comprehensive representation of student learning. Document analysis confirmed that teachers continued to employ paper-based examinations, classroom observations, and individual interviews as complementary assessment methods. Observational data further showed that direct teacher-student interaction remained essential for evaluating language skills that could not be fully measured through automated systems.

Discussion

This study aimed to investigate the implementation of Technology-Based Assessment in

English language learning and identify the challenges encountered by teachers during its implementation. Based on the purpose, the findings demonstrate that English teachers at SMA Negeri 1 Seririt have integrated various digital technologies into assessment practices, including Google Forms, Wayground, Zep Online, Padlet, and Google Classroom. The widespread use of these platforms reflects the increasing role of technology in contemporary assessment practices and supports the view that assessment is no longer limited to measuring learning outcomes but also functions as a tool for facilitating learning itself. According to Wolf and Lopez (2022), technology-enhanced assessment enables teachers to collect evidence of learning more efficiently while providing opportunities for continuous feedback and instructional adjustment. The present findings suggest that teachers strategically select digital platforms according to specific instructional goals, indicating that technology integration in assessment is becoming increasingly pedagogically driven rather than merely technologically driven.

Among the technologies employed, Google Forms emerged as the most frequently used platform. This finding can be interpreted through the Technology Acceptance Model, which emphasizes perceived usefulness and perceived ease of use as major factors influencing technology adoption. Teachers appeared to prefer Google Forms because it simplifies assessment administration, automates data collection, and provides immediate scoring and feedback. These findings support previous studies that identified Google Forms as one of the most practical and accessible tools for educational assessment (Pradnyadewi et al., 2022; Dewi et al., 2023). However, the present study extends previous research by demonstrating that teachers use Google Forms not only for administering assessments but also for monitoring student learning progress and facilitating immediate instructional responses. This suggests that the platform functions as both an assessment and learning management tool, supporting the principles of assessment for learning rather than assessment of learning alone.

Another important finding concerns the dominant use of technology-based assessment for diagnostic and formative purposes. Teachers utilized digital platforms to identify students' prior knowledge, monitor learning development, and provide continuous feedback throughout instruction. The findings also support Sanjaya et al. (2023), who argue that technology-based assessment can effectively provide real-time information about student understanding, enabling teachers to adjust instructional strategies according to students' needs. Furthermore, the results are consistent with Namaziandost et al. (2020), who emphasize that digital assessment should serve as an integral component of the learning process rather than solely as a mechanism for assigning grades. Interestingly, teachers in this study preferred conventional approaches for summative assessment despite actively implementing technology for diagnostic and formative assessment. This finding differs from Dewi et al. (2023), who reported broader use of digital technologies in summative examinations. The discrepancy may be explained by contextual factors, particularly teachers' concerns regarding assessment credibility and academic integrity. This suggests that technology adoption in assessment is influenced not only by technological availability but also by teachers' confidence in the validity and trustworthiness of assessment outcomes. Consequently, teachers tend to adopt a cautious approach when technology is used for high-stakes assessment purposes.

The findings further reveal that technology-based assessment contributes significantly to student engagement and participation. Platforms such as Wayground and Zep Online were specifically employed to create game-based assessment experiences that encourage active participation and increase student motivation. From the perspective of constructivist learning theory, learning becomes more meaningful when students actively engage with tasks and interact with learning environments. The game elements embedded within these platforms appear to foster intrinsic motivation, competition, and sustained attention during assessment activities. This interpretation is consistent with Sanjaya et al. (2023), who found that interactive assessment technologies increase student participation, as well as Wahyuni et al. (2023), who reported that digital learning environments positively influence student motivation and engagement.

Moreover, the findings indicate that different technologies serve distinct pedagogical functions. While Wayground and Zep Online support motivation and engagement through gamification, Padlet and Google Classroom facilitate collaboration, discussion, reflection, and feedback exchange. This finding supports socio-constructivist perspectives, which emphasize that learning occurs through social interaction and collaborative knowledge construction. Through discussion forums and collaborative digital spaces, students are encouraged to articulate their ideas, respond to peers, and engage in reflective learning processes. Therefore, technology-based assessment should not be viewed as a single assessment approach but rather as a collection of diverse tools that can support different learning and assessment objectives.

Despite these benefits, maintaining academic integrity emerged as one of the most significant challenges in implementing technology-based assessment. Teachers reported that students frequently used search engines, translation applications, artificial intelligence tools, and communication platforms during assessments. These findings reflect growing concerns regarding the impact of digital technologies on assessment authenticity. The increasing accessibility of artificial intelligence presents a particularly complex challenge because students can generate sophisticated responses without necessarily demonstrating genuine understanding. From an assessment perspective, this situation threatens construct validity because assessment results may reflect students' ability to use technological tools rather than their actual language competence. The issue of academic integrity identified in this study is consistent with recent discussions concerning the influence of artificial intelligence on educational assessment. While AI technologies offer substantial educational benefits, their inappropriate use may undermine the credibility of assessment outcomes. Consequently, the findings suggest that educators need to reconsider assessment design by emphasizing higher-order thinking skills, authentic performance tasks, and assessment formats that require personal reflection, critical analysis, and contextualized responses. Such approaches may reduce opportunities for students to rely excessively on external technological assistance.

Technical and infrastructure-related challenges also significantly influenced the implementation of technology-based assessment. Internet connectivity problems, limited device availability, compatibility issues, and technical malfunctions frequently disrupted assessment activities. These findings support Zlatkin-Troitschanskaia et al. (2019), who identified technological infrastructure and digital competence as essential conditions for successful technology integration. Similarly, Mjenda and Kyaruzi (2025) argued that inadequate technological resources continue to represent major barriers to effective digital learning implementation. The consistency of these findings across different contexts suggests that infrastructure readiness remains a fundamental prerequisite for successful technology-enhanced assessment.

The findings also highlight concerns regarding assessment validity and reliability. Teachers frequently questioned whether students' online assessment scores accurately represented their actual English proficiency, particularly in writing tasks. This issue can be interpreted through the concept of assessment validity, which emphasizes that assessment outcomes should accurately measure the intended construct. When students rely on translation applications, AI tools, or external resources, assessment results may fail to reflect genuine language competence. Consequently, teachers experience difficulties determining whether assessment scores truly represent students' abilities.

In addition, limitations associated with automated grading systems raise concerns regarding assessment reliability. Although automated scoring provides efficiency and immediate feedback, teachers reported instances where correct answers were marked incorrectly because of minor variations in capitalization, punctuation, spacing, or formatting. These findings suggest that automated systems may struggle to accommodate the complexity and variability of language use. Such limitations support the argument that technology, while highly efficient, cannot fully replace professional teacher judgment in evaluating complex language skills such as writing and

communication. As a response to these challenges, teachers in this study adopted a hybrid assessment approach by combining technology-based assessment with conventional assessment methods, including interviews, classroom observations, and paper-based examinations. This practice can be interpreted as an effort to strengthen assessment validity through methodological triangulation. By collecting evidence from multiple assessment sources, teachers are better able to verify students' actual learning achievements and obtain a more comprehensive understanding of student performance. This finding supports the argument that technology should complement rather than replace traditional assessment approaches.

CONCLUSIONS

This study demonstrates that TBA has become an integral component of English language assessment practices at SMA Negeri 1 Seririt. Rather than functioning solely as a tool for measuring learning outcomes, TBA serves as a mechanism for supporting learning through continuous monitoring, immediate feedback, increased student participation, and more efficient assessment management. The findings indicate that teachers strategically employ different digital platforms, including Google Forms, Wayground, Zep Online, Padlet, and Google Classroom, according to specific assessment objectives. While Google Forms is primarily utilized for assessment administration and feedback provision, other platforms support gamified learning, collaboration, discussion, reflection, and formative assessment practices. The study also reveals that although TBA offers substantial benefits for diagnostic and formative assessment, several challenges continue to influence its implementation. Concerns regarding academic integrity, particularly the use of search engines, translation tools, artificial intelligence, and peer communication during assessments, raise questions about the authenticity of student performance. Furthermore, technical and infrastructure limitations, including unstable internet connectivity, device incompatibility, and technological disruptions, remain significant barriers to effective implementation.

The findings of this study have several important implications. For teachers, the results highlight the importance of assessment literacy and the ability to design technology-enhanced assessments that promote authentic learning while minimizing opportunities for academic misconduct. For schools and educational policymakers, the findings emphasize the need to strengthen technological infrastructure, provide reliable internet access, and support teacher professional development related to digital assessment practices. Despite its contributions, this study has limitations. The research was conducted in a single senior high school and involved a limited number of English teachers. Future research is recommended to explore students' perspectives on technology-based assessment, examine the role of artificial intelligence in educational assessment, and evaluate strategies for maintaining academic integrity while maximizing the pedagogical benefits of digital technologies. Such investigations would contribute to the development of more valid, reliable, and sustainable assessment practices in increasingly technology-driven educational environments.

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