Developing Learning Evaluation Materials Assisted by the Quizizz Application to Support Self-Directed Learning

Putu Sandra Putri Astariani[1],
Raden Roro Rieta Anggraheni[2], Ni Wayan Sadiyani[3],
and I Putu Yoga Laksana[4]

[1,2,3,4] Politeknik Negeri Bali, Badung, Bali
sandraputri88@pnb.ac.id

Abstract. This research aims to develop evaluation materials based on interactive quizzes using the Quizizz application to support the self-directed learning process of students in the International Business Management Study Program at Politeknik Negeri Bali. Quizizz-based evaluation materials were chosen due to their interactive design and automatic feedback, making them suitable for self-directed learning. The research method employed is the ADDIE model of research and development (R&D) by Reiser and Mollenda, which consists of five main steps: analyze, design, develop, implement, and evaluate. The test subjects are students and lecturers of specific courses. Data collection techniques include feedback from media and material experts, student response questionnaires on the use of evaluation materials, and learning outcome test data. Data analysis is conducted using quantitative descriptive analysis. The research product is a valid, practical, and effective Quizizz-based evaluation material. This evaluation materials are expected to support and enhance students' self-directed learning, ultimately improving the quality of graduates. The benefits of these interactive quiz-based evaluation materials will provide students with autonomy in self-directed learning and the ability to receive feedback provided by the interactive quizzes.

Keywords: Learning Evaluation Materials, Self-Directed Learning, Quizizz Application

1 Introduction

In the era of Society 5.0, characterized by rapid technological advancements, the integration of digital tools in education has become imperative, particularly in language learning and assessment. The emergence of gamified student response systems (GSRS) like Quizizz has revolutionized classroom engagement and evaluation processes, offering an interactive and motivating approach to learning (Aljaloud et al., 2015; Sun & Hsieh, 2018; Welbers et al., 2019). As English proficiency becomes increasingly crucial in the global business landscape, there is a growing need for innovative evaluation methods that not only assess language skills but also foster self-directed learning among students, especially in the context of English for Specific Purposes (ESP) and preparation for standardized tests (Jeong, 2022; Pham, 2022).

Theoretical and empirical studies have consistently highlighted the positive impacts of using interactive digital tools in language assessment. Quizizz, in particular, has been praised for its ability to enhance student engagement, motivation, and academic performance in English Language Teaching (ELT) contexts (Amalia, 2020; Hamilton-Hankins, 2017; Zuhriyah & Pratolo, 2020). Research by Suwarto (2021) and Zhao, (2019) demonstrated that Quizizz implementation led to improved test scores and reading comprehension. The platform's gamification features, such as leaderboards and instant feedback, has been shown to create a positive, low-stress learning environment (Yunus & Hua, 2021; Malvado et al., 2022). Moreover, Quizizz has been recognized for its versatility in accommodating various learning styles (Degirmenci, 2021) and its potential to support self-regulated learning (Hussain et al., 2023). The application's effectiveness extends beyond traditional classroom settings, proving particularly valuable in online learning environments, especially during the COVID-19 pandemic (Dhamayanti, 2021; Rahmawati, 2021).

Despite the growing body of research on Quizizz in ELT, there remains a significant gap in understanding its effectiveness in developing self-directed learning skills, particularly in the context of ESP for business students preparing for TOEIC. While previous studies have focused on general language acquisition and classroom engagement (Pahamzah & Juniardi, 2020; Zhang & Crawford, 2023), limited research has explored how Quizizz-based evaluation materials can be tailored to support autonomous learning in specific professional language contexts. This gap is particularly notable given the increasing demand for graduates who can independently navigate the complexities of business English in an international setting (Laura et al., 2021). Furthermore, while the benefits of mobile-assisted language learning (MALL) in promoting self-directed learning have been acknowledged (Lai et al., 2022), the specific role of interactive assessment tools like Quizizz in this process remains underexplored.

The present study aims to address this research gap by developing and evaluating Quizizz-based assessment materials designed to enhance self-directed learning among International Business Management students. Specifically, this research seeks to answer two critical questions: 1) How can Quizizz-based evaluation materials be effectively developed to support self-directed learning in ESP contexts? 2) To what extent do these materials enhance students' self-directed learning capabilities and English proficiency, particularly in preparation for TOEIC? By exploring these questions, this study contributes to the evolving field of technology-enhanced language assessment and provides practical insights for educators seeking to foster autonomous learning in ESP contexts. The findings of this research have significant implications for curriculum design, assessment strategies, and the integration of digital tools in language education for business professionals, aligning with the broader goals of preparing students for the digital economy and global business environment (Gencer et al., 2023; Pramudita, 2023).

2   Methodology

This study employed a Design-Based Research (DBR) approach, as outlined by Amiel & Reeves (2008), to develop and evaluate Quizizz-based assessment materials for

supporting self-directed learning in ESP contexts. The DBR methodology was chosen for its iterative nature and focus on solving real-world educational problems through the design and testing of innovative interventions. The research process followed four main phases: (1) identification and analysis of the problem, (2) development of solutions, (3) iterative cycles of testing and refinement, and (4) reflection to produce design principles. This approach allowed for continuous improvement of the materials based on emerging findings and participant feedback throughout the research process.

Participants in the study comprised 32 second-semester students enrolled in the International Business Management program at the State Polytechnic of Bali, specifically those taking the English for Interpersonal Communication course. These participants were selected through purposive sampling to ensure relevance to the research objectives. The sample included a diverse range of English proficiency levels, providing a comprehensive perspective on the effectiveness of the developed materials.

Data collection employed a mixed-methods approach, incorporating both quantitative and qualitative data to provide a comprehensive understanding of the research questions. The methods included an initial needs analysis survey, collection of Quizizz analytics data, semi-structured interviews with a subset of 5 students, non-participant classroom observations, and expert validation of the developed materials. This multi-faceted approach to data collection ensured a rich and diverse dataset, capturing both the quantitative impacts of the intervention and the qualitative experiences of the participants.

The data analysis process involved both quantitative and qualitative methods to provide a comprehensive evaluation of the Quizizz-based materials. Quantitative analysis included descriptive statistics for survey responses and Quizizz analytics data, paired t-tests to compare pre- and post-test scores, and the use of a ratio formula to evaluate the effectiveness of the materials, with scores above 79% considered good and between 60-79% considered adequate (Haviz, 2015). Qualitative analysis involved thematic analysis of interview transcripts and observation notes, following the steps outlined by Miles et al (2014). This included coding, identifying themes, and interpreting patterns related to self-directed learning and user experience. Expert validation feedback was synthesized to refine the materials and ensure their alignment with ESP principles and self-directed learning objectives.

To enhance the validity and reliability of the findings, data from different sources were triangulated, providing a comprehensive understanding of the effectiveness of the Quizizz-based materials in supporting self-directed learning. This methodological approach ensured that the final product was not only theoretically sound but also practically effective in meeting the needs of ESP students in developing self-directed learning skills through Quizizz-based assessments. The iterative nature of the DBR approach allowed for continuous refinement of the materials, ensuring their relevance and effectiveness in the specific context of ESP for International Business Management students preparing for TOEIC.

3   Result and Discussion

3.1   Result

Development of Quizizz-based Evaluation Materials for Self-Directed Learning in ESP Contexts. The development of Quizizz-based evaluation materials followed an iterative process guided by the Design-Based Research approach. Initial analysis of student needs revealed a strong preference for interactive, accessible, and TOEIC-relevant assessment tools. This analysis, conducted through surveys and interviews with 32 second-semester International Business Management students, highlighted the need for flexible learning resources that could support self-directed study while aligning with the demands of the TOEIC exam and business English contexts.

Based on these findings, we developed a comprehensive set of 50 multiple-choice questions covering three key areas: listening, error analysis, and structure. These areas were chosen to mirror the TOEIC test format while also addressing critical language skills needed in business communication. The questions were carefully crafted to incorporate real-world business scenarios, ensuring relevance to the students' future professional needs.

A key feature of the developed materials was the inclusion of detailed explanations for each question. These explanations were designed not just to provide correct answers, but to offer comprehensive insights into the reasoning behind each answer. For listening questions, explanations included breakdowns of key phrases, idiomatic expressions, and contextual cues that students needed to understand to arrive at the correct answer. This approach was aimed at enhancing students' analytical listening skills, a crucial component of business English proficiency.

The error analysis section was developed to sharpen students' grammatical awareness and editing skills, essential for professional written communication. Questions in this section presented common grammatical errors found in business writing, challenging students to identify and correct them. Explanations for these questions went beyond simple corrections, offering insights into grammatical rules and their applications in various business contexts.

Structure questions were designed to test and improve students' understanding of complex sentence constructions often encountered in business English. These questions ranged from identifying appropriate sentence completions to choosing the best way to combine sentences for clarity and impact. The accompanying explanations for these questions provided detailed insights into sentence structure, word choice, and stylistic considerations in business writing.

The development process was highly iterative, involving multiple rounds of testing and refinement. After the initial set of questions was developed, it was reviewed by a panel of three experts in ESP and educational technology. Their feedback led to several revisions, including adjustments to question difficulty levels, refinement of business contexts used in examples, and improvements in the clarity and depth of explanations.

Student feedback played a crucial role in the refinement process. A pilot test with a small group of students revealed the need for more varied business scenarios and a preference for shorter, more focused explanations in some cases. This feedback led to

further adjustments, ensuring that the final product was not only pedagogically sound but also user-friendly and engaging for the target audience.

The final version of the materials was seamlessly integrated with the Quizizz platform, leveraging its features such as instant feedback, progress tracking, and flexible access. The integration allowed for randomized question order and timed sessions, mimicking test conditions while still providing the option for untimed practice. This flexibility was key in supporting various learning styles and preferences, aligning with the goal of fostering self-directed learning among students preparing for careers in international business.

Effectiveness of Quizizz-based Materials in Enhancing Self-Directed Learning and English Proficiency. The effectiveness of the developed Quizizz-based materials was evaluated through a comprehensive analysis of survey data, focusing on three key aspects: Quality of Content and Presentation, Usability and Interactive Design, and Impact on Motivation and Learning. This multi-faceted approach provided a nuanced understanding of the impact on students' self-directed learning capabilities and overall English proficiency.

Analysis of the Quality of Content and Presentation aspect revealed high satisfaction among students. The relevance of the materials to English learning needs received the highest score of 83.13%. This indicates that the developed content successfully aligned with students' expectations and requirements for business English and TOEIC preparation. The diversity and relevance of the exercises provided also received high appreciation, with a score of 81.25%, confirming the effectiveness of the variety of questions developed, including listening, error analysis, and structure. It can be seen in Figure 1.
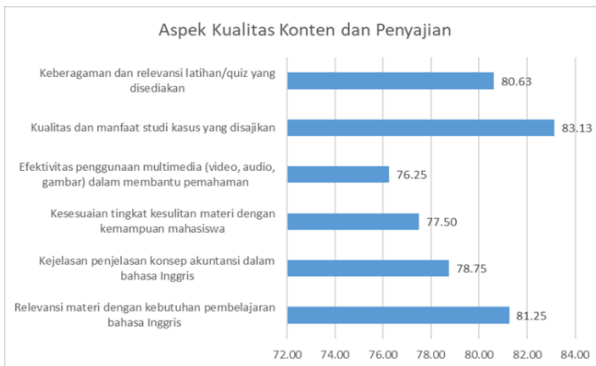
Figure 1. Effectiveness analysis results from content and presentation quality aspects (in Indonesia language)

The Usability and Interactive Design of the Quizizz-based materials also received positive feedback. The ease of access to additional materials scored the highest at 82.50%, demonstrating the success in integrating various learning resources within the Quizizz platform. Both the ease of navigation and the effectiveness of interactive

features scored 81.88%, indicating that the user interface design facilitated a smooth and engaging learning experience. It can be seen in Figure 2.
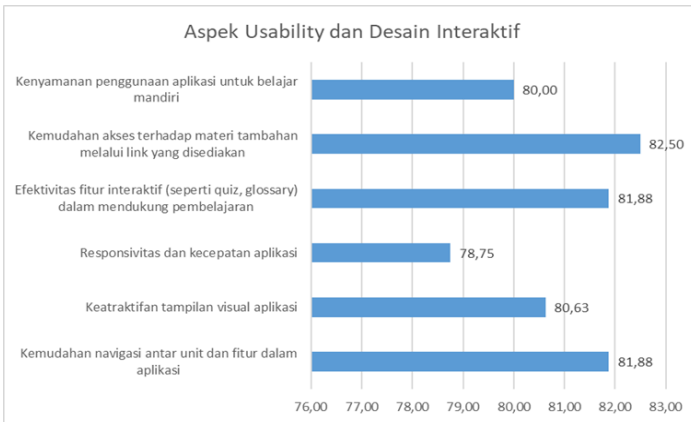
Figure 2. Effectiveness analysis results from usability and interactive design aspects (in Indonesia language)

Perhaps the most significant results in Figure 3 were observed in the Impact on Motivation and Learning aspect. The increase in motivation to study advanced structures, listening, and error analysis in English received the highest score of 86.88%. This substantial increase indicates that the Quizizz-based materials not only facilitated learning but also inspired students to take greater ownership of their English language development. The increase in confidence in using English also saw a significant boost, with a score of 85.63%. This growth in confidence is a crucial outcome, as it directly relates to students' ability to apply their English skills in real-world business situations, a key objective of the course.
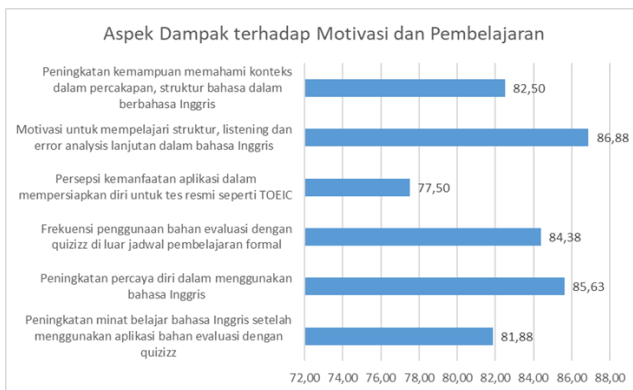
Figure 3. Results of effectiveness analysis from the aspect of impact on motivation and learning (in Indonesia language)

The frequency of using the evaluation materials outside formal learning schedules scored 84.38%, indicating that students were actively engaging with the materials for self-study. This high score suggests that the Quizizz-based materials successfully promoted self-directed learning behaviors.

Interestingly, while most aspects scored above 80%, the perception of the application's usefulness in preparing for official tests like TOEIC received a slightly lower score of 77.50%. While still a positive result, this suggests an area for potential future improvement in aligning the materials more closely with standardized test formats.

Overall, these results collectively indicate that the Quizizz-based evaluation materials were highly effective in enhancing both self-directed learning capabilities and overall English proficiency among the International Business Management students. The combination of relevant content, user-friendly design, and features supporting autonomous learning created an environment conducive to significant language skill development, particularly in preparation for business communication needs and, to a slightly lesser extent, for standardized tests like TOEIC.

3.2   Discussion

This study demonstrates the significant potential of Quizizz-based evaluation materials in enhancing self-directed learning and English proficiency among International Business Management students. High scores across content quality, usability, and impact on motivation underscore the effectiveness of these materials in meeting students' needs and promoting autonomous learning.

The high relevance of materials to English learning needs (83.13%) aligns with Amalia's (2020) findings on Quizizz's effectiveness as an online assessment tool. The strong positive impact on motivation (86.88%) corroborates Sun and Hsieh's (2018) research on gamified interactive response systems enhancing learner motivation. Our results extend this understanding by demonstrating how such motivation can be channeled towards self-directed learning.

The increase in confidence in using English (85.63%) supports Pramudita's (2023) observations on Quizizz enhancing EFL students' classroom participation. Our study further shows this confidence extends beyond the classroom, potentially impacting students' readiness for real-world business communication.

High frequency of use outside formal learning schedules (84.38%) aligns with Jeong's (2022) emphasis on technology's role in encouraging self-directed learning. High usability scores support Degirmenci's (2021) observations on Quizizz's ability to accommodate various learning styles. Interestingly, the perception of usefulness in preparing for official tests like TOEIC received a lower score (77.50%), contrasting with Zhao's (2017) findings on Quizizz improving exam scores. This suggests a need for better alignment between Quizizz-based materials and official test formats.

Overall, this study contributes to the growing evidence supporting interactive, technology-enhanced assessment tools in language education, extending previous research by demonstrating Quizizz's benefits in promoting self-directed learning in an ESP context. The findings underscore the potential of gamified assessment tools to enhance language skills and foster autonomous learning capabilities essential for

success in the global business environment. Future research could explore ways to align such tools more closely with standardized test preparations.

4. Conclusion

This study demonstrates the significant potential of Quizizz-based evaluation materials in enhancing self-directed learning and English proficiency among International Business Management students. The high scores across content quality, usability, and impact on motivation underscores the effectiveness of this approach in meeting students' needs and promoting autonomous learning. Particularly noteworthy are the increased motivation to study advanced English concepts independently and the improved confidence in using English, which are crucial for future business professionals. While the materials proved highly effective for general language skill development, the slightly lower perception of their usefulness for TOEIC preparation suggests an area for future refinement. Overall, this research contributes valuable insights to the field of technology-enhanced language assessment, highlighting how gamified tools like Quizizz can be leveraged to create engaging, effective learning experiences that foster both language proficiency and self-directed learning skills. These findings have important implications for ESP curriculum design and the integration of digital tools in language education for business students, paving the way for more innovative, learner-centered approaches in preparing students for the demands of the global business environment.

Acknowledgment

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