

# Optimizing ESP Learners' English Vocabulary Proficiency through Mobile-Assisted Formative Assessment

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## Abstract

The integration of mobile technology in English language learning has opened new opportunities for formative assessment, especially in ESP (English for Specific Purposes) contexts. This study investigates how Mobile-Assisted Language Learning (MALL) tools can optimize the English proficiency of economics students enrolled in an ESP course at a private university in East Java. This quasi-experimental study involved 30 second-semester students from the Faculty of Economics. The intervention included the use of Quizizz for vocabulary and reading quizzes, Google Forms for writing tasks with feedback, and Padlet for collaborative peer assessment. Pre-test and post-test data were collected over eight weeks and analysed quantitatively using descriptive statistics and paired sample t-tests. The results showed a significant improvement in learners' vocabulary, reading, and writing scores. Students also reported positive perceptions of the MALL tools in terms of engagement, accessibility, and relevance to their field. The integration of MALL-based formative assessment facilitated feedback cycles, increased learner autonomy, and contextualized ESP instruction. Challenges included varied digital readiness and inconsistent peer feedback participation. This study suggests that MALL can be a scalable and effective strategy for enhancing ESP instruction in non-English departments. Institutions should support teacher training and infrastructure to maximize its potential.

**Keywords:** *Mobile-Assisted Language Learning, Formative Assessment, ESP Economics students, English Proficiency, Higher Education*

## Introduction

The rapid advancement of technology in the 21<sup>st</sup> century has profoundly influenced the field of education, including language teaching and learning. In English language education, particularly in English for Specific Purposes (ESP) contexts, digital technologies have opened new opportunities for instructors to design innovative learning environments that are more interactive, learner-centered, and relevant to students' academic and professional domains (Rachmawati and Purwati, 2021). Among these technological advancements, Mobile-Assisted Language Learning (MALL) has gained increasing attention due to its flexibility, accessibility, and capacity to facilitate both formal and informal learning.

ESP courses in the Faculty of Economics, especially at the university level, require specific linguistic and communicative competencies that are directly aligned with students'

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future career needs, such as understanding economic texts, writing business emails, interpreting financial documents, and engaging in professional discussions (Dwita et al., 2024). However, traditional approaches to ESP instruction often focus heavily on textbook-based activities and summative assessment, which may not sufficiently address individual learner needs or provide ongoing feedback that supports language development. This gap creates a pressing need for more responsive and formative assessment strategies that can be integrated seamlessly into students' learning routines.

Formative assessment plays a pivotal role in monitoring student progress, identifying learning gaps, and adjusting instruction accordingly. It emphasizes assessment for learning rather than of learning, where feedback is immediate, constructive, and focused on student improvement. When formative assessment is delivered through mobile devices, using platforms such as Google Forms, Quizizz, Kahoot, or Socrative, it becomes more engaging and accessible for learners (Romadhon, 2024). As demonstrated in Lutfa's study, most participants acknowledged that podcasts enhance listening comprehension, support vocabulary acquisition, and improve speaking skills through repeated exposure and practice (Lutfa et al., 2024). MALL-based formative assessment enables instructors to collect real-time data, analyze learner performance, and provide instant feedback, thereby fostering more dynamic learning interactions.

In Indonesian universities, especially in private institutions located in regional areas such as East Java, the integration of mobile technology in ESP classes remains underexplored. While students are generally familiar with smartphones and internet-based communication, these tools are rarely optimized as formal components of pedagogical or assessment practices (Borkovska et al., 2024; Erito, 2023). Many ESP lecturers still rely on paper-based quizzes or mid-semester tests to evaluate student performance, which limits the frequency and immediacy of feedback. As such, the potential of MALL to support formative, low-stakes, and continual assessment remains largely untapped.

The implementation of MALL as a formative assessment strategy is rooted in several theoretical frameworks, including constructivist learning theory, which emphasizes active learner engagement, and Vygotsky's Zone of Proximal Development (ZPD), where timely and tailored feedback helps learners advance beyond their current capabilities (Widodo, 2015). Furthermore, technology acceptance models (TAM) highlight how perceived ease of use and usefulness influence learners' willingness to adopt digital tools. In this study, these theoretical foundations guided the design of mobile-based assessment tasks and the evaluation of student perceptions and outcomes.

Previous studies have shown that mobile learning tools can significantly contribute to language learning gains, especially when used as part of formative assessment (Erito, 2023; Nguyen and Tran, 2023a, 2023b; Rachmawati and Fadhilawati, 2024). However, many of these studies were conducted in EFL or ESL contexts without specific attention to ESP learners. Given that ESP learners typically engage with domain-specific language and require a different instructional focus, it is necessary to explore how mobile-based formative assessment can be tailored to meet their unique linguistic and professional needs. This research was conducted at a private university in East Java and involved students from the Faculty of Economics enrolled in an ESP course during the 2024-2025 academic year. The study investigated how mobile-assisted formative assessment could be effectively utilized to enhance students' English proficiency, particularly in the domains of reading comprehension, vocabulary acquisition, and written expression.

By examining the implementation of MALL in an ESP classroom setting, this study aims to fill a critical gap in the existing literature and offer practical recommendations for language educators in similar contexts. Specifically, the research addresses the following question: How can mobile-assisted formative assessment be used to optimize English proficiency among ESP learners in the Faculty of Economics? The findings are expected to provide insights into both the pedagogical and technological dimensions of assessment in ESP instruction and to support more effective integration of mobile tools in higher education language programs.

## Method

This study employed a classroom-based action research design with a qualitative-quantitative mixed-methods approach. The research was conducted in two cycles to investigate the effectiveness of mobile-assisted formative assessment in improving the English proficiency of ESP learners (Creswell, 2014). Action research was selected as it allows the researcher to intervene in the learning process and observe the changes resulting from the implementation of a specific pedagogical strategy. In this case, the use of MALL (Mobile-Assisted Language Learning) tools for formative assessment.

The participants of the study were 45 second-semester students of the Faculty of Economics at a private university in East Java, who were enrolled in an ESP (English for Specific Purposes) course during the 2024-2025 academic year. These students were taking English as a compulsory course designed to support their academic literacy and workplace communication needs, focusing on topics such as business correspondence, economic reports, and presentation skills. The students were selected using purposive sampling, with the inclusion criteria being: (1) enrolled in the ESP course, (2) possessing a smartphone with internet access, and (3) willing to participate in the research voluntarily.

Three main instruments were used in this study:

1. Pre-test and Post-test

These tests measured students' English proficiency before and after the implementation of MALL-based formative assessment. The test items focused on vocabulary, reading comprehension, and short business writing tasks relevant to the ESP syllabus.

2. Formative Assessment Activities Using MALL Applications

The study utilized three main mobile applications, they are quizzizz for weekly vocabulary and reading quizzes with instant feedback; google forms for writing tasks and open-ended questions that allowed peer and teacher feedback; padlet as an interactive discussion board to support collaborative reflection on weekly topics and vocabulary use.

3. Questionnaire and Reflective Journal

After each cycle, a structured questionnaire using a Likert scale was distributed to gather students' perceptions of the MALL-based formative assessment activities. In addition, students were asked to write weekly short reflections (via Padlet) about their experience and learning progress.

The research was conducted over 8 weeks, divided into two cycles:

- Cycle 1 (Weeks 1-4):
  - Students were given a pre-test to assess their baseline English proficiency.

- Weekly formative assessment activities were conducted using Quizizz and Google Forms.
- Feedback was provided immediately via Quizizz or written by the instructor through Google Forms.
- Padlet was introduced as a tool for peer discussion and self-reflection.
- At the end of the cycle, data from the students' reflections and formative scores were collected and analyzed.
- Cycle 2 (Weeks 5-8):
  - Based on the findings of Cycle 1, minor adjustments were made to the quiz difficulty and feedback mechanisms.
  - Formative assessments continued with increased emphasis on writing through Google Forms and collaborative input via Padlet.
  - A post-test was conducted in Week 8 to measure improvement.
  - Final questionnaires and student reflections were collected.

Quantitative data from the pre-test and post-test were analyzed using paired sample t-tests to identify significant differences in students' English proficiency before and after the intervention. Quiz scores and writing performance were also tracked over time. Qualitative data from student reflections, Padlet posts, and open-ended responses in the questionnaire were analyzed thematically to capture student engagement, motivation, and perceptions of mobile-assisted formative assessment. All participants provided informed consent prior to participation. The research was approved by the academic ethics committee of the university. Students' identities were anonymized in the report, and their participation had no effect on their final course grades.

## Results

To evaluate the improvement in students' English proficiency after the implementation of mobile-assisted formative assessment, a paired sample t-test was conducted on the students' pre-test and post-test scores. The test focused on three domains: vocabulary mastery, reading comprehension, and short written expression.

**Table 1. Comparison of Pre-test and Post-test Scores (N = 45)**

Component	Pre-test Mean	Post-test Mean	Mean Difference	t- value	p- value
Vocabulary	62.4	76.7	+14.3	8.95	0.000
Reading Comprehension	65.1	79.2	+14.1	9.27	0.000
Writing Task (Short Text)	58.3	73.5	+15.2	8.42	0.000
<b>Overall Score</b>	<b>61.9</b>	<b>76.5</b>	<b>+14.6</b>	<b>9.54</b>	<b>0.000</b>

The statistical analysis indicates a significant improvement across all components ( $p < 0.05$ ). The greatest gain was observed in writing tasks, suggesting that students particularly benefited from continuous feedback on their written outputs through tools like Google Forms and Padlet.

## 2. Weekly Formative Assessment Performance

Students' progress during the 8-week intervention was tracked through weekly Quizizz and Google Forms activities. Scores showed a consistent improvement over time.

**Table 2. Weekly Average Formative Scores (out of 100)**

Week	Quizizz (Vocabulary & Reading)	Google Forms (Writing Task)
1	64.0	58.0
2	68.2	61.5
3	71.0	65.0
4	74.5	69.2
5	77.0	71.8
6	79.5	74.6
7	81.3	76.2
8	83.6	78.5

This consistent increase indicates that formative assessment via MALL tools contributed positively to sustained engagement and skill improvement. Quizizz helped maintain vocabulary recall through gamified repetition, while Google Forms allowed detailed writing submissions and individual feedback.

### 3. Student Perceptions (Questionnaire Results)

A post-intervention questionnaire was distributed to collect student perceptions of the mobile-assisted formative assessment. Students responded to 10 items on a 5-point Likert scale.

**Table 3. Student Perceptions of MALL-Based Formative Assessment**

Statement	Mean Score (out of 5)
Using Quizizz helped me learn vocabulary better.	4.56
I received useful feedback through Google Forms.	4.42
Padlet made peer interaction easier and more enjoyable.	4.38
MALL activities made me more motivated to study English.	4.47
Weekly quizzes helped me track my learning progress.	4.51
I prefer MALL-based assessments over traditional paper tests.	4.33
I became more confident in using English in economic contexts.	4.12
I found the tools (Quizizz, Google Forms, Padlet) easy to use.	4.68
The assessment activities were relevant to my ESP learning needs.	4.45
I would recommend this method for future classes.	4.53

These findings indicate a high level of acceptance and satisfaction among students. The highest-rated item was the ease of use of MALL tools, confirming that mobile platforms were appropriate for the learners' digital literacy level. The findings of this study confirm that Mobile-Assisted Language Learning (MALL)-based formative assessment can significantly enhance the English proficiency of ESP learners in the context of higher education, particularly among non-English major students in the Faculty of Economics at a private university in East Java. This section discusses the results in light of relevant theories, previous studies, and the practical implications of integrating MALL tools into ESP instruction.

#### 1. Improvement in English Proficiency through Formative Assessment

The statistically significant increase in students' post-test scores compared to their pre-test scores across all components (vocabulary, reading, and writing) demonstrates the effectiveness of formative assessment supported by MALL tools. The largest gain occurred in the writing component (+15.2), which can be attributed to the iterative nature of feedback provided through Google Forms and the reflective discussion process encouraged via Padlet.

These platforms allowed learners to internalize instructor and peer feedback, revise their responses, and gradually build confidence in expressing ideas related to business and economic contexts in English.

This finding aligns with Brown (2015) theory of formative assessment, which posits that continuous assessment and feedback can directly influence learner performance by identifying gaps and guiding improvement. In this study, the digital tools functioned as channels that facilitated such feedback cycles in a more dynamic and student-centred manner.

## **2. The Role of MALL Tools in Enhancing Engagement and Autonomy**

The use of Quizizz for vocabulary and reading quizzes brought an element of gamification to language assessment. Its instant scoring, leaderboard feature, and time constraints transformed what is often seen as a routine task into a competitive and enjoyable learning experience. Weekly quiz performance, which steadily increased over eight weeks, indicates that the students were not only motivated but also progressively more competent. This observation supports the findings of Silitonga et al. (2024), who argued that gamified MALL applications foster engagement and long-term retention of vocabulary.

Moreover, Padlet, as an interactive space for peer feedback and reflection, contributed to social constructivist learning, allowing students to co-construct meaning (Li and Wang, 2023). Students learned not only from teacher correction but also by comparing their own outputs with those of peers, thus encouraging critical thinking and self-evaluation, which are essential in ESP learning where context-specific language use is key.

## **3. ESP Relevance and the Context of Learning**

The positive perception of learners regarding the relevance of MALL activities to their ESP needs (Mean = 4.45) indicates that the integration of economic and business-related content in assessments was effective. The formative tasks were not generic language exercises, but rather contextualized scenarios such as writing short business emails, interpreting graphs, or completing financial reports. This task-based ESP approach ensures that language learning remains purposeful and tailored to students' future professional demands.

This aligns with the principles of English for Specific Purposes (Rachmawati and Purwati, 2022), which emphasizes the necessity of designing learning materials and assessments that reflect the learners' target situation. By using formative assessment to track not only general proficiency but also discipline-specific usage, the study demonstrates how MALL can operationalize authentic ESP instruction.

## **4. Student-Centeredness and Feedback Mechanisms**

The use of Google Forms allowed for the automation of scoring for objective questions and more importantly, personalized feedback for open-ended responses. Unlike traditional paper-based formative tests, MALL-based assessments enabled the teacher to provide detailed comments, categorize common errors, and adjust instruction in real time (M. Li, 2018). The students also reported that they were more aware of their own mistakes and learning progress due to this constant feedback loop.

According to Brown (2015), formative assessment is most effective when it provides actionable feedback that helps learners close the gap between current performance and desired goals. In this case, the clarity and accessibility of feedback provided through mobile platforms helped students become active agents in their own learning process, a key factor in promoting learner autonomy.

One of the key success factors of this study was the ease with which students adopted and interacted with the MALL tools. With a mean score of 4.68 on the statement "I found the tools easy to use," it is evident that the selected applications, like Quizizz, Google Forms,

and Padlet met the students' digital literacy level. This is particularly relevant in developing country contexts like Indonesia, where mobile phones are more accessible than laptops or computers, making mobile-based interventions more feasible and scalable.

As supported by Chen (2024), mobile technologies can democratize access to quality language learning resources, especially in contexts where institutional infrastructure is limited. The tools used in this study were free, required minimal training, and could function asynchronously, features that are crucial for ensuring continuity and flexibility in ESP instruction.

Despite the overall positive outcomes, several challenges were encountered. Some students initially lacked motivation to participate actively in Padlet discussions, requiring additional encouragement. Others faced occasional technical problems such as unstable internet connectivity, especially during synchronous feedback sessions. Furthermore, not all students engaged equally in self-reflection or peer review, highlighting the need for scaffolding and training in reflective practices as part of the assessment design.

These challenges suggest that while MALL-based formative assessment is promising, it should be complemented by supportive teaching strategies, including training in how to give or receive feedback and how to manage mobile learning time effectively. The findings of this study contribute to the growing body of literature that emphasizes the potential of technology-enhanced formative assessment in ESP contexts. In particular, the study illustrates how relatively simple tools can be effectively used to enhance specific skills (vocabulary, reading, writing) within a disciplinary framework. For ESP instructors, this suggests a practical path toward modernizing language instruction without the need for expensive or complex platforms. Additionally, the findings advocate for a shift from summative-heavy evaluation systems to more formative-oriented assessment cultures, particularly in non-English departments where language is often seen as peripheral. Encouraging continuous, low-stakes assessment may not only improve proficiency but also enhance students' attitudes toward language learning.

## Conclusion

This study set out to investigate the effectiveness of mobile-assisted formative assessment in enhancing the English proficiency of ESP (English for Specific Purposes) learners in the Faculty of Economics at a private university in East Java. Through the implementation of selected MALL (Mobile-Assisted Language Learning) tools, namely Quizizz, Google Forms, and Padlet, the research demonstrated that formative assessment delivered via mobile platforms can significantly improve learners' vocabulary mastery, reading comprehension, and writing ability in an ESP context.

The pre-test and post-test results revealed measurable improvements in all assessed skill areas, with the most substantial gain observed in students' writing performance. These outcomes underscore the value of iterative, contextualized, and feedback-rich learning environments in developing English proficiency that is not only linguistically sound but also relevant to learners' academic and professional fields. Moreover, the students reported high engagement levels, increased motivation, and positive attitudes toward learning through mobile platforms, suggesting that MALL also contributes to enhanced learner autonomy and self-reflection.

In sum, this study concludes that MALL-based formative assessment is an effective, accessible, and engaging method for optimizing English language learning in ESP settings. It supports a shift from traditional, summative-heavy models of assessment to more interactive, learner-centered approaches that encourage continuous progress. This is

particularly important in faculties outside of language majors, where English is a supporting competence rather than the core focus.

The findings imply that ESP instructors should consider integrating mobile technologies not only as supplementary learning aids but as core components of their formative assessment strategy. Furthermore, future research is encouraged to explore the long-term impact of MALL integration on learner proficiency and retention, and to examine its scalability in different institutional and socio-economic contexts.

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