Integrating a Mobile English Learning Application and Reflective Learner Diaries: A Classroom-Based Study of First-Year University Students

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ABSTRAK

Abstrak: Penelitian ini berangkat dari praktik pembelajaran di kelas Bahasa Inggris di perguruan tinggi dan bertujuan untuk menggambarkan perubahan kemampuan Bahasa Inggris mahasiswa dan mengeksplorasi perkembangan kemampuan belajar mandiri mereka melalui pembelajaran berbantuan aplikasi digital dan penulisan learner diary reflektif. Penelitian dilakukan pada mahasiswa Biologi semester pertama yang mengikuti mata kuliah Bahasa Inggris di sebuah universitas di Indonesia dengan menggunakan desain one-group pretest–posttest selama tiga bulan. Selama intervensi, mahasiswa menggunakan aplikasi pembelajaran Bahasa Inggris secara rutin sebagai sarana belajar mandiri dan menulis diary harian yang merefleksikan materi serta pengalaman belajar mereka. Data penelitian meliputi hasil tes kemampuan Bahasa Inggris sebelum dan sesudah intervensi, serta learner diary mahasiswa. Hasil analisis menunjukkan adanya kecenderungan peningkatan kemampuan Bahasa Inggris mahasiswa, khususnya pada aspek kosakata dan tata bahasa. Selain itu, learner diary mengindikasikan berkembangnya kesadaran mahasiswa terhadap proses belajar mereka dan munculnya perilaku belajar mandiri. Meskipun bersifat eksploratif, penelitian ini menunjukkan bahwa penggabungan aplikasi pembelajaran dan refleksi tertulis berpotensi mendukung pengembangan kemampuan Bahasa Inggris sekaligus kemampuan belajar mandiri mahasiswa di kelas perguruan tinggi yang heterogen.

Abstract: This study, based on learning practices in English classes at a university, aims to describe changes in students' English skills and explore the development of their independent learning abilities through digital application-assisted learning and reflective learner diaries. The study was conducted on first-semester Biology students taking an English course at an Indonesian university using a one-group pretest–posttest design for three months. During the intervention, students routinely used an English learning application as a means of independent learning and wrote daily diaries reflecting on the material and their learning experiences. The research data included English proficiency test results before and after the intervention, as well as student learner diaries. The analysis showed a trend toward improving students' English skills, particularly in vocabulary and grammar. Furthermore, the learner diaries indicated a growing awareness of their learning process and the emergence of independent learning behaviours. Although exploratory in nature, this study demonstrates that combining a learning application and written reflections has the potential to support the development of both English skills and students' independent learning abilities in heterogeneous university classes.

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A. BACKGROUND

English language learning in higher education plays a strategic role in equipping students with functional language skills and lifelong learning skills. Students are not only expected to be able to understand academic texts and use English communicatively, but also to be able to manage their learning process independently, especially in learning contexts that increasingly demand independence and the use of digital technology [1], [2]. In the context of higher education in Indonesia, these demands are becoming increasingly relevant given the heterogeneity of students' language backgrounds and the limited face-to-face time in general English classes.

However, various studies show that first-year students still face difficulties in mastering basic aspects of English, such as vocabulary, grammar, and reading comprehension, and tend to rely on lecturer instructions [11], [14]. This condition is also seen in non-major English classes, where students often view English as a supporting subject and have not developed effective independent learning strategies [13]. As a result, the learning process often focuses on completing assignments, rather than on developing learning awareness and reflection on language progress.

The development of digital technology has encouraged the emergence of technology-assisted language learning, particularly mobile-assisted language learning (MALL), which offers flexibility and access to learning outside the classroom [5], [6]. English learning applications provide vocabulary, grammar, pronunciation, and reading comprehension exercises that can be accessed independently by learners [7]. However, several studies have confirmed that the use of learning technology does not automatically result in improved language skills or learning independence without adequate pedagogical support [7], [8].

One approach that has the potential to bridge the use of technology and the development of independent learning is writing a learner diary or reflective journal. Learner diaries allow students to reflect on their learning experiences, difficulties encountered, and strategies used, thereby encouraging metacognitive awareness and self-regulation [15], [16]. In language learning, written reflection has been reported to help students link learning activities to the development of their language skills [3], [11].

Based on these conditions, there is a gap between the demands of English language learning in higher education, which emphasize independent learning, and learning practices that are still limited to conventional classroom activities. Therefore, classroom-based research that examines the integration of English language learning applications and reflective learner diaries is important to understand how this approach can support the development of students' language skills and learner autonomy [2], [8].

B. RESEARCH METHOD

Design

This study employed a classroom-based research design with a descriptive exploratory approach. Specifically, it employed a one-group pretest–post-test design, in which one group of students was given an English proficiency test before and after a three-month learning intervention. This design was chosen to illustrate changes in students' English proficiency after participating in digital application-assisted learning combined with reflective learner diary writing, without involving a control group.

In addition to quantitative data in the form of test results, this study also utilized qualitative data from students' learner diaries to explore the development of learning awareness and independent learning behaviours during the learning process. Thus, this study combines quantitative and qualitative data descriptively to obtain a more comprehensive picture of the learning process and outcomes.

Participants

The research participants were first-semester Biology students at an Indonesian university taking a compulsory English course. All students in one class were selected using a total sampling technique, as this study was based on classroom learning practices taught by the researcher. Participants had diverse English language proficiency backgrounds, as reflected in the pretest results, which showed varying levels of initial proficiency.

Instruments

This study used two types of instruments, namely English proficiency tests, the British Council EnglishScore, and reflective learner diaries.

English Language Proficiency Test

The British Council EnglishScore is a mobile-based English language proficiency test developed by the British Council to measure general English proficiency quickly, practically, and in a standardized manner. This application was used because:

1. It can be accessed via mobile app, and the test runs only 40 minutes. This allows for efficient assessment of proficiency in a relatively short time.
2. This test primarily measures grammar, vocabulary, reading, and listening, which represent receptive English skills and basic language knowledge. It does not directly measure speaking and writing. CEFR Scores and Standards
3. Test results are reported as numeric scores mapped to CEFR levels (A1–C1), making it easier to interpret participants' English proficiency within an international framework.
4. The EnglishScore is a valid and reliable test since it was developed based on British Council assessment standards and has been widely used in educational and employment contexts as a screening indicator of English proficiency.
5. In the context of classroom-based research, the EnglishScore is suitable for use as a pretest–posttest tool because it is easily accessible, consistent, and does not require close face-to-face supervision.

This test was used in pretest and post-test to measure changes in students' English skills before and after the intervention. The test covered aspects of vocabulary, grammar, reading comprehension, and the use of simple expressions in basic academic contexts. The test format was tailored to the course's learning objectives and the proficiency level of first-year students.

Learner Diary

The learner diary is a daily reflective journal written by students during the intervention period. Students are asked to record their learning activities through the English learning application, the material studied, any difficulties encountered, and personal reflections on their learning process. The learner diary is used to explore students' perceptions of learning, the development of learning awareness, and the emergence of independent learning behaviours.

Procedure

The research was conducted during the first semester of college, with an intervention period of three months. Initially, students took a pretest to assess their initial English language skills. Next, students were introduced to an English learning application, which served as a tool for independent learning outside of class.

During the intervention period, students were asked to use the learning application regularly and write a learner diary daily or periodically according to the provided guidelines. The application use and diary writing were not intended as separate exercises, but rather as part of the English course learning process.

At the end of the intervention period, students took a post-test with a format and difficulty level comparable to the pretest. All learner diaries written during the research period were then collected as qualitative data.

Data Analysis

Quantitative data, consisting of pretest and post-test scores, were analysed descriptively to determine trends in changes in students' English skills after the intervention. The analysis focused on comparing pre- and post-learning scores, both overall and for specific aspects of language skills, such as vocabulary and grammar.

Qualitative data from learner diaries were analysed using thematic analysis. The analysis process included repeated reading of student diaries, initial coding of emerging themes, and grouping themes related to learning awareness, learning strategies, and independent learning behaviours. The results of the qualitative analysis were used to complement and enrich the quantitative findings.

Ethics

This research was conducted in accordance with ethical principles of educational research. Student participation was voluntary, and the data collected was used solely for academic purposes. Participants'

identities were kept confidential in reporting the research results.

C. RESULTS AND DISCUSSIONS

Results

The analysis of pretest and post-test scores showed a trend toward improved students' English skills after the intervention, although this improvement was not drastically significant. Overall, the average post-test score was higher than the pretest score, indicating improvement in students' English skills during the application-assisted learning period and the learner diary writing.

Student	Pretest	CEFR Level	Post-test	CEFR Level
1	295	A2	373	B1
2	77	Pre-A1	230	A2
3	383	B1	390	B1
4	220	A2	241	A2
5	194	A1	248	A2
6	328	B1	315	B1
7	118	A1	304	B1
8	202	A2	210	A2
9	276	A2	304	B1
10	192	A1	203	A2
11	174	A1	207	A2
12	64	Pre-A1	107	A1
13	127	A1	127	A1
14	118	A1	136	A1
15	144	A1	165	A1
16	107	A1	162	A1
17	86	Pre-A1	98	Pre-A1
18	154	A1	174	A1
19	136	A1	106	A1
20	249	A2	284	A2

Figure 1. *Pretest and Post-test Scores*

Improvements in skills were most evident in vocabulary and basic grammar, while improvements in other aspects, such as reading comprehension, tended to be more moderate. This finding aligns with the characteristics of the English learning app used, which provides intensive exposure to vocabulary practice, sentence structure, and language use in simple contexts.

In addition to quantitative data, student learner diaries provide a more detailed picture of changes in student learning styles throughout the learning process. In the initial phase of the intervention, most students reported that their learning activities were limited to jotting down lists of new vocabulary without further processing. Vocabulary was often written down as a standalone list without context for use.

However, over time, student diaries revealed a shift in learning strategies. Many students began writing down vocabulary words complete with their meanings and adding simple example sentences using the words they were learning. Some also noted grammatical rules associated with the vocabulary, making their study notes more structured and meaningful.

Learner diaries also revealed variations in learning intensity and motivation among students. Some students demonstrated high motivation by consistently studying almost every day and writing relatively lengthy reflections. Conversely, others reported studying only a few times a week and engaging in minimal learning activities to meet assignment demands.

Furthermore, visual learning strategies emerged naturally among students. Some students marked their study notes with different highlighter colours to differentiate between vocabulary words, grammar rules, and example sentences. This strategy was used to facilitate comprehension and expedite the review process.

Discussion

The findings of this study indicate that the most significant change lies not in the magnitude of the increase in English test scores, but rather in changes in students' learning processes and strategies. The moderate increase in scores is understandable given the relatively short duration of the intervention and the study design, which did not involve a control group. Nevertheless, this upward trend still indicates that digital application-assisted learning contributes to the development of students' English skills, particularly in vocabulary and basic grammar [4], [6].

The change in students' learning strategies, from simply creating vocabulary lists to writing down meanings and example sentences, reflects an increased awareness of the importance of context in language learning. This finding aligns with the view that vocabulary mastery requires processing meaning and usage in context, not just recognizing word forms [4], [14]. The learner diary serves as a reflective medium that encourages students to process language more actively and purposefully [15].

The variations in motivation and learning intensity revealed in learner diaries confirm that learning technology is not an automatic solution for developing language skills or learning independence. Consistent with previous research, the effectiveness of technology-assisted learning is highly dependent on learner engagement, motivation, and self-regulation [7], [8], [9]. Students who demonstrate high learning engagement tend to develop more diverse and reflective learning strategies.

The emergence of visual learning strategies, such as the use of coloured markers in study notes,

indicates the development of metacognitive strategies and learning organization. These strategies reflect students' efforts to manage language information more systematically and efficiently, which is an important characteristic of learners beginning to develop learning independence [3], [10], [12].

Theoretically, the findings of this study support the view that learner autonomy develops through a continuous and structured process of reflection, not using technology alone [1], [2]. The combination of learning applications and learner diaries in this study functioned as pedagogical scaffolding that allowed students to observe, evaluate, and adjust their own learning strategies. Although measurable improvements in language proficiency are still limited, changes in students' learning processes are important indicators for the long-term development of English language learning in higher education [8], [11].

D. CONCLUSION AND SUGGESTION

Conclusion

This classroom-based study aimed to describe changes in students' English language skills and explore the development of their independent learning abilities through digital application-assisted learning and reflective learner diaries. The results showed a trend toward improvement in students' English skills after the intervention, although this improvement was moderate. The most visible improvements occurred in vocabulary and basic grammar, while improvements in other skills were relatively limited.

The main finding of this study lies in the changes in students' learning styles during the learning process. Students demonstrated a shift from simple learning strategies, such as jotting down vocabulary lists, to more structured and reflective strategies, including writing down word definitions, example sentences, and organizing study notes with the help of visual markers. Furthermore, the learner diaries revealed variations in motivation and learning intensity, reflecting the heterogeneity of student characteristics in college English classes.

Overall, this study shows that combining English learning applications with reflective learner diary writing has the potential to support not only the development of language skills but also students' awareness and independence in learning. Although the findings are exploratory, changes in students' learning processes are important indicators for the development of English learning practices in higher education.

Suggestion

The findings of this study offer several pedagogical implications for English language learning in higher education, particularly in heterogeneous classroom contexts with limited face-to-face time. First, the results indicate that the use of English learning apps can be an effective means of expanding students' language exposure outside the classroom, particularly in basic vocabulary and grammar. However, the effectiveness of these apps increases when accompanied by structured reflective activities, such as writing a learner diary. Therefore, lecturers are advised not only to recommend learning apps but also to design reflective assignments that encourage students to consciously process their learning experiences.

Second, the changes in student learning strategies identified in the learner diaries indicate the importance of providing space for students to develop and adapt their own learning strategies. English learning in higher education can be directed to emphasize the learning process, rather than solely test scores, by encouraging students to integrate vocabulary, grammar, and language use in context through written notes and reflections. This approach has the potential to help students develop more sustainable study habits.

Third, the variations in motivation and learning intensity that emerged during the study underscore the need for lecturers to act as facilitators who provide pedagogical scaffolding. Rather than relying on technology as the sole solution, lecturers can provide general guidance on learning strategies, examples of reflection, or limited feedback on learner diaries to assist students who are still in the early stages of developing independent learning.

Overall, the pedagogical implications of this research emphasize that technology integration in English learning needs to be combined with a reflective approach oriented toward the development of learner autonomy. Such an approach has the potential to support the development of English language skills while equipping students with independent learning skills relevant for long-term learning.

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