

An Exploratory Qualitative Study on University Educators' Perceptions and Challenges in Implementing Intelligent English Learning Environments in Indonesian Universities

Studi Kualitatif Eksploratif tentang Persepsi dan Tantangan Pendidik Perguruan Tinggi dalam Implementasi Lingkungan Pembelajaran Bahasa Inggris Cerdas di Universitas-Universitas Indonesia

Authors

Andrew Nicholas Hartono ¹
Elizabeth Maria Santoso ²
amuel Robert Wijaya ³

¹ Universitas Airlangga, Indonesia

² Universitas Airlangga, Indonesia

³ Universitas Airlangga, Indonesia

Corresponding author:
s.wijaya@unair.ac.id

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Abstract

This study explores university English educators' perceptions, challenges, and strategies in implementing Intelligent Learning Environments (ILEs) in Indonesian higher education institutions. A qualitative exploratory design was employed, involving semi-structured interviews with 10 English lecturers. The data were analyzed using reflexive thematic analysis. The findings reveal that ILEs significantly transform teaching practices by shifting educators' roles from traditional knowledge providers to facilitators, mentors, and learning designers. These technologies enhance student engagement, motivation, and learning outcomes through adaptive, interactive, and personalized learning experiences. However, several challenges were identified, including limited technological infrastructure, insufficient training, digital inequality, and resistance to pedagogical change. The study also highlights key strategies for effective implementation, such as gradual integration of technology, continuous professional development, and institutional support. Overall, while Intelligent Learning Environments offer substantial benefits for English language teaching in Indonesian universities, their successful implementation depends on educators' readiness and sustained organizational commitment to digital transformation in education.

Keywords

Intelligent Learning Environments; English Language Teaching; Higher Education; Teacher Perceptions; Qualitative Study.

Abstrak

Penelitian ini bertujuan untuk mengeksplorasi persepsi, tantangan, dan strategi dosen bahasa Inggris dalam implementasi Intelligent Learning Environments (ILEs) di universitas Indonesia. Penelitian ini menggunakan pendekatan kualitatif dengan desain studi eksploratif melalui wawancara semi-terstruktur terhadap 10 dosen bahasa Inggris. Data dianalisis menggunakan reflexive thematic analysis. Hasil penelitian menunjukkan bahwa ILEs mengubah peran dosen dari pengajar tradisional menjadi fasilitator dan perancang pembelajaran yang lebih berpusat pada mahasiswa. Teknologi ini juga meningkatkan keterlibatan, motivasi, dan hasil belajar mahasiswa melalui pembelajaran yang adaptif dan interaktif. Namun, implementasinya menghadapi berbagai tantangan seperti keterbatasan infrastruktur, kurangnya pelatihan, kesenjangan digital, dan resistensi terhadap perubahan. Strategi utama yang direkomendasikan meliputi pelatihan berkelanjutan, integrasi bertahap, dan penguatan pengembangan profesional dosen. Secara keseluruhan, ILEs memiliki potensi besar dalam meningkatkan kualitas pembelajaran bahasa Inggris di pendidikan tinggi Indonesia, tetapi membutuhkan dukungan institusional yang kuat.

Kata Kunci

Lingkungan Pembelajaran Cerdas; Pembelajaran Bahasa Inggris; Pendidikan Tinggi; Persepsi Dosen; Studi Kualitatif

Introduction

The integration of Intelligent Learning Environments (ILEs) into English language teaching and learning in Indonesian universities represents a significant transformation in instructional approaches, driven by rapid technological advancements and evolving educational needs. Intelligent learning environments employ artificial intelligence (AI), the Internet of Things (IoT), and big data as core components to create more adaptive, personalized, and responsive English learning ecosystems (Sun et al., 2020). These environments are designed to support differentiated instruction, increase student engagement, and enhance the efficiency and effectiveness of learning through the use of advanced information technologies and digital media (Li & Zhao, 2020).

Recent studies have primarily focused on the impact of ILEs in English language education. For instance, the integration of mobile learning platforms and intelligent teaching systems within English curricula has been shown to increase student engagement and improve learning outcomes (Chen, 2022). Similarly, the implementation of intelligent platforms such as Moso Teach in higher education settings demonstrates that well-structured collaborative learning activities can positively influence student performance in English courses (Zhu & Wang, 2023). In addition, mobile-assisted language learning environments that simulate real-life communication contexts have enabled students to practice English more effectively both inside and outside the classroom (Abonales, 2016).

However, despite these advantages, the implementation of ILEs in English language education in Indonesian universities is not without challenges. Educators often encounter obstacles such as insufficient training, resistance to pedagogical change, and the ongoing need for adequate technical support (Han, 2019). Moreover, concerns remain regarding the effectiveness of integrated technologies in addressing diverse learning needs and reducing classroom distractions (Xu et al., 2021). These issues highlight the importance of developing appropriate strategies to support educators in effectively integrating intelligent learning tools into their teaching practices.

Furthermore, the adoption of ILEs offers several pedagogical benefits in English language instruction. These include the provision of personalized learning experiences, the enhancement of students' language competencies, and the creation of more interactive and engaging learning environments through intelligent systems and multimedia tools (Yang et al., 2020). In addition, these technologies facilitate teaching processes while generating valuable big data that can be used to improve curriculum design and instructional strategies (Hu, 2022).

Despite these potentials, educators still express concerns related to the disruption of traditional teaching methods caused by intelligent technologies, including challenges in managing large classes and maintaining student motivation (Han, 2019). Addressing these issues requires targeted solutions such as continuous teacher training, reliable technical support, and the development of engaging and context-appropriate learning content for English learners.

Therefore, although intelligent learning environments hold significant promise for enhancing English language teaching in Indonesian universities, their successful implementation depends on addressing these challenges and systematically integrating educators' expertise. By examining these issues, the effectiveness of intelligent learning technologies can be optimized to improve the quality and responsiveness of English language education in higher education institutions in Indonesia.

The purpose of this qualitative study is to explore Indonesian university English educators' perceptions, challenges, and strategies regarding the implementation of Intelligent Learning Environments (ILEs) in higher education settings.

Accordingly, the research questions are formulated as follows:

RQ1: What are the overall perceptions of English educators towards the implementation of intelligent learning technologies in English language teaching environments at Indonesian universities?

RQ2: What specific advantages and challenges do English educators identify in integrating intelligent learning technologies into English language instruction at Indonesian universities?

RQ3: What strategies do English educators propose to enhance the effectiveness and acceptance of intelligent learning technologies in English language teaching at Indonesian universities?

Method

Research Design

This study adopts a qualitative research design to explore university English educators' perceptions, challenges, and strategies related to the implementation of Intelligent Learning Environments (ILEs) in Indonesian universities. A qualitative approach is considered appropriate as it enables the researcher to capture participants' lived experiences, perspectives, and meanings, which are essential in educational research contexts (Creswell & Poth, 2018). In addition, qualitative inquiry is well suited for examining complex educational phenomena and generating rich, in-depth, and contextualized data (Merriam & Tisdell, 2015). Therefore, this approach allows for an in-depth exploration of educators' attitudes, perceived benefits, and challenges in integrating intelligent technologies into English language teaching in higher education settings.

Data Collection and Sampling

This study employed purposive sampling to recruit participants who have relevant experience in using intelligent learning technologies in English language teaching. Participants were recruited through academic networks and professional online platforms commonly used by educators in Indonesia, such as WhatsApp groups, Telegram academic forums, LinkedIn, and institutional communication channels. These platforms are widely used by university lecturers for academic collaboration and professional communication.

An invitation containing information about the study and a researcher contact email was distributed to facilitate participant communication. Purposive sampling ensured that selected participants had sufficient experience and understanding of Intelligent Learning Environments, which is essential for obtaining rich and relevant qualitative data (Rai & Thapa, 2015). In total, 10 English lecturers from Indonesian universities participated in this study to explore their perceptions, challenges, and strategies in implementing intelligent learning technologies.

Research Participants

The participants consisted of 10 English lecturers from four universities in Indonesia. They were selected based on their direct experience with intelligent learning technologies in English language teaching. Among the participants, six were female and four were male, with ages ranging from 28 to 42 years. All participants had at least three years of teaching experience using intelligent or technology-enhanced learning systems.

This purposive selection ensured that the participants possessed adequate professional exposure to provide meaningful insights into the implementation of Intelligent Learning Environments in English language instruction. Their experiences contributed to a comprehensive understanding of educators' perceptions, challenges, and instructional strategies in Indonesian higher education contexts.

Table 1. Participant Profile

No	Age	Gender	Teaching Experience	Experience with Intelligent Learning Technologies
1	32	Female	6 years	3 years
2	38	Male	10 years	4 years
3	34	Female	7 years	3 years
4	40	Male	12 years	5 years
5	29	Female	4 years	3 years
6	36	Female	9 years	4 years
7	33	Male	8 years	4 years
8	37	Female	10 years	4 years
9	31	Female	5 years	3 years
10	35	Male	7 years	4 years

Research Instrument

Data were collected through semi-structured online interviews conducted via secure digital communication platforms such as Zoom and Google Meet. This method ensured convenience, accessibility, and confidentiality for participants while allowing lecturers from different regions in Indonesia to participate without geographical limitations.

Each interview was conducted individually to ensure depth of responses and to minimize external influence. The interviews lasted approximately 45–60 minutes and were conducted over a three-week period. The interview began with introductory and warm-up questions to build rapport, followed by guiding questions related to participants' perceptions of Intelligent Learning Environments, perceived benefits, challenges, and suggested strategies for effective implementation.

This structured yet flexible approach ensured that the interviews remained aligned with the research objectives while allowing participants to express their experiences freely. The interview protocol is provided in Appendix A.

Data Analysis

The data were analyzed using reflexive thematic analysis to identify patterns and themes related to educators' perceptions and experiences. Reflexive thematic analysis is a systematic yet flexible method that involves iterative processes of coding, interpretation, and researcher reflection (Braun & Clarke, 2019).

The analysis followed six phases. First, the researcher became familiar with the data by repeatedly reading interview transcripts and noting initial ideas. Second, initial codes were generated to identify meaningful segments relevant to the research questions. Third, potential themes were developed by grouping related codes. Fourth, themes were reviewed and refined to ensure coherence and relevance to the dataset. Fifth, themes were clearly defined and named to capture their essence. Finally, the findings were written up and interpreted in relation to existing literature, integrating analytical insights with direct data extracts.

Although presented in sequential steps, the process was iterative, allowing movement back and forth between stages to refine interpretations and ensure depth of analysis.

Ethical Considerations

Ethical approval and participant consent were obtained prior to data collection. All participants were informed about the purpose of the study, their voluntary participation, and their right to withdraw at any time without consequences. Written informed consent was obtained before interviews were conducted, including permission for audio recording.

Confidentiality and anonymity were strictly maintained throughout the research process. Participants' identities were anonymized using codes, and all collected data were securely stored. These ethical procedures ensured the protection of participants' rights while enhancing the credibility and trustworthiness of the study.

Results

4.1 Overview of Themes

The analysis of interview data revealed four major themes reflecting Indonesian university English educators' perceptions, experiences, and challenges in implementing Intelligent Learning Environments (ILEs). Each theme is further divided into subthemes that capture different dimensions, including changes in teaching roles, student engagement, perceived benefits, implementation barriers, and strategies for effective adoption. In total, four themes and eight subthemes emerged from the reflexive thematic analysis process.

4.1.1 Theme 1: Educators' Perceptions of Intelligent Learning Technology Implementation

Subtheme: Transformation of Teaching Roles

The integration of intelligent learning technologies in English language teaching within Indonesian universities has significantly reshaped educators' professional roles. The traditional teacher-centered model is gradually shifting toward a more learner-centered and facilitative approach, where lecturers act as designers of learning experiences rather than sole knowledge providers.

As Participant 1 explained:

"These technologies will shift educators' roles from content delivery to facilitators of personalized learning experiences and critical thinking development." (Participant 1)

Similarly, Participant 5 emphasized:

"Educators' roles will evolve into facilitators and advisors, focusing more on critical thinking and personalized support rather than direct instruction." (Participant 5)

Participant 7 further reinforced this idea by highlighting the mentoring dimension of teaching in technology-enhanced environments:

"These technologies will transform educators into facilitators of personalized learning. They will focus more on guiding and mentoring individual students." (Participant 7)

Subtheme: Engagement and Learning Enhancement

Participant 4 stated:

"Technologies can make learning interactive and adaptive, catering to individual needs and maintaining student interest through gamification." (Participant 4)

Participant 6 added:

"Intelligent technologies offer interactive, immersive learning experiences. They cater to diverse learning styles, keeping students motivated and engaged." (Participant 6)

Participant 9 also noted:

"These technologies can provide interactive, real-time learning experiences that adapt to students' needs, keeping them engaged and motivated." (Participant 9)

4.1.2 Theme 2: Benefits of Intelligent Technology Integration in English Learning

Subtheme: Enhanced Interactive Learning

Participant 4 stated:

"These technologies shift the classroom dynamic, allowing for more interactive sessions that cater specifically to the needs of each student." (Participant 4)

Participant 7 explained:

"By using AI-driven tools, we can create a learning environment that adapts in real-time to the pace and preferences of students, making education more effective." (Participant 7)

Participant 10 added:

"Interactive platforms enable a hands-on approach to language learning, which helps in maintaining high levels of student involvement and interest." (Participant 10)

Subtheme: Improved Learning Outcomes

Participant 1 stated:

"I have observed increased student engagement, personalized feedback, and improved language proficiency and retention through adaptive learning tools." (Participant 1)

Participant 2 added:

"Benefits include increased student motivation, individualized learning paths, and immediate feedback, which significantly improve learning outcomes." (Participant 2)

Participant 5 further confirmed:

"I've seen improved student motivation and engagement, more tailored instruction, and quicker, more effective feedback that enhances overall language proficiency." (Participant 5)

4.1.3 Theme 3: Challenges in Implementing Intelligent Learning Environments

Subtheme: Technical and Resource Constraints

Participant 1 stated:

"Challenges include limited technical infrastructure, resistance from traditionalists, and the steep learning curve associated with new technologies." (Participant 1)

Participant 6 added:

"Key challenges include technical issues, lack of training for educators, and resistance from both students and faculty accustomed to traditional methods." (Participant 6)

Participant 9 emphasized:

"Challenges include ensuring all students have access to the necessary technology. There's also the need for adequate training to use these tools effectively." (Participant 9)

Subtheme: Resistance and Adaptation Issues

Participant 2 stated:

"I have encountered challenges such as technical issues, varying levels of digital literacy among students, and initial resistance to change." (Participant 2)

Participant 3 added:

"Challenges include limited resources and ensuring equitable access for all students. Additionally, there is often initial resistance from students and faculty." (Participant 3)

Participant 8 further noted:

"One major challenge is the digital divide, with some students lacking access to necessary technology. There's also a learning curve for both students and teachers." (Participant 8)

4.1.4 Theme 4: Strategies to Enhance Effectiveness and Acceptance

Subtheme: Integration and Training Strategies

Participant 4 stated:

"Gradual integration and comprehensive training are essential. Encouraging a collaborative learning environment and blending traditional methods with technology enhances effectiveness." (Participant 4)

Participant 5 added:

"To maximize effectiveness, I recommend continuous professional development, incorporating student feedback, and gradually integrating technologies into the curriculum." (Participant 5)

Participant 6 stated:

"I recommend providing thorough training for both educators and students. Gradual integration of technology helps ease the transition." (Participant 6)

Subtheme: Professional Development Importance

Participant 7 stated:

"Ongoing professional development must be tailored to specific technological tools to truly enhance educators' ability to deploy them effectively in diverse classroom settings." (Participant 7)

Participant 8 added:

"Workshops and seminars on new technologies should also address the pedagogical shifts necessary to adapt these tools to current educational strategies." (Participant 8)

Participant 9 emphasized:

"Training programs should focus not only on the how-to of technology but also on fostering an innovative mindset that embraces changes and challenges in digital education." (Participant 9).

Discussion

RQ1: Perceptions of Educators

The findings show that Indonesian university English educators perceive intelligent learning environments as transformative in reshaping their roles from traditional instructors to facilitators, mentors, and learning designers. These technologies also enhance personalization, interaction, and student engagement.

This aligns with previous studies such as Wen (2022), Sun et al. (2020), and Yu and Nazir (2021), which highlight the role of AI-based systems in improving engagement and learning efficiency.

Intelligent systems enable educators to focus more on guiding students' cognitive development rather than delivering content alone (Xie et al., 2022). Real-time feedback and adaptive learning features also contribute to improved learning outcomes (Nong et al., 2021).

RQ2: Benefits and Challenges

The study reveals that intelligent learning environments improve student engagement, motivation, and personalized learning outcomes. However, challenges such as infrastructure limitations, digital literacy gaps, and resistance to change remain significant barriers.

These findings are consistent with Dahbi (2023), Elsakova et al. (2019), and Liu (2023), who emphasize both the benefits and limitations of AI-driven education. Technical barriers and lack of training remain key obstacles (Wang, 2021). Digital inequality and system complexity further complicate implementation (Nong et al., 2021).

RQ3: Strategies for Implementation

Participants emphasized gradual integration, continuous professional development, and structured training as key strategies for successful implementation.

These findings align with Hu (2022), Wang and Yu (2022), and Liu et al. (2022), who stress the importance of teacher training and institutional support in maximizing the effectiveness of intelligent learning systems. Continuous professional development is essential for ensuring that educators can adapt to evolving technologies (Lin, 2022).

Conclusions

This study concludes that Intelligent Learning Environments (ILEs) significantly transform English language teaching in Indonesian universities by reshaping educators' roles, enhancing student engagement, and improving learning outcomes. Educators increasingly transition from traditional knowledge transmitters to facilitators, mentors, and instructional designers who support personalized and interactive learning experiences. Despite these benefits, the implementation of ILEs is still constrained by several challenges, including limited technological infrastructure, insufficient training, unequal access to digital tools, and resistance to pedagogical change. These barriers highlight the need for systematic institutional support to ensure effective integration. Furthermore, the study emphasizes that gradual implementation, continuous professional development, and pedagogical adaptation are essential strategies to optimize the use of intelligent technologies in English language education. Overall, while ILEs offer significant potential to enhance teaching quality and learning effectiveness, their success largely depends on educators' readiness and institutional commitment to sustainable digital transformation in higher education.

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