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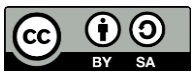

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Micro-Ethnography Approach in Using Technology to Support Learning Interaction

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Abstract

Technological and Artificial Intelligence (AI) development provides challenges and opportunities for lecturers to create dynamic and relevant classroom engagements, especially in courses that demand intensive communication skills, such as English Education. A micro-ethnography approach can help lecturers analyze social engagements in the classroom in detail, adapt their teaching style, and increase student engagement by combining technology and a personal approach. This study aims to explore lecturers' strategies for strengthening classroom interaction in English Education study program using the micro-ethnography approach in the era of technology and AI. This research uses the literature review method and qualitative descriptive analysis to collect and analyze data on lecturers' strategies for strengthening classroom interaction in the era of AI and technology in English language teaching. The results of this study show that the utilization of technology and the micro-ethnography approach in education, including in the English Education study program, is crucial to strengthen classroom interaction in the digital era. Technologies such as AI provide opportunities to understand students' learning preferences more personally, while micro-ethnography approaches help lecturers create inclusive and adaptive learning experiences.

Keywords: *AI; Learning Interaction; Micro-Ethnography; Technology*

Introduction

In higher education, classroom interaction is crucial in creating an effective and meaningful learning environment. The development of technology and the presence of Artificial Intelligence (AI) have changed the dynamics of classroom interactions and forced lecturers to explore new strategies that can sustain student engagement in the digital era. (Seo, Tang, Roll, Fels, & Yoon, 2021). In the

era of AI and technology, changes in learning and teaching are inevitable. Today's students have unlimited access to information and advanced learning tools to learn independently outside the classroom. (Dimitriadou & Lanitis, 2023).. Nonetheless, the role of lecturers as facilitators of classroom interaction is irreplaceable, even becoming more crucial.

Technology's rapid transformation provides new challenges for lecturers to maintain meaningful interactions in the classroom. (Sihombing, 2023). On the one hand, technological advances allow students to learn more independently and flexibly through various digital learning applications and online resources. However, this independence can also reduce the intensity of their engagement in class if not managed well. Direct interaction with lecturers and classmates is valuable in building a more profound understanding, practicing critical thinking, and developing essential social skills for students (Santoso, 2023). This puts lecturers in a unique position as facilitators who must be able to combine technology with a personalized approach, creating a balance between self-directed learning and direct guidance.

In the era of AI and technological advancements, innovative teaching strategies are necessary to keep learning dynamic and relevant. AI, for example, can assist lecturers in identifying students' learning needs and preferences through detailed data analysis, thereby facilitating a personalized approach to teaching. (Hamid et al., 2022).. However, using this technology is more than just the ability to access information quickly. Meaningful interaction in the classroom is also a key piece to help students understand and apply the knowledge gained. (Akour & Alenezi, 2022).. Therefore, lecturers face the challenge of using technology as a tool, not a substitute, to strengthen deep and productive relationships between students and lecturers and create a more integrative and practical learning experience.

In an all-digital era, students also show diverse preferences when receiving learning materials (Harwardt, Niermann, Schmutte, & Hrsg, 2020). Some students are potentially more interested in technology-based presentations, while others need face-to-face discussions to truly understand the material (Rizvi & Nabi, 2021). (Rizvi & Nabi, 2021). In this case, meaningful interaction between lecturers and students is a challenge that needs to be addressed with appropriate strategies. This makes the study of lecturers' strategies to strengthen classroom interaction relevant, especially in study program that demand intensive communication, such as English Education. In English education study program, where communication skills are the main focus, interaction between lecturers and students helps them understand the material and develop practical English skills relevant to global needs. Technology and AI provide new challenges and opportunities to strengthen classroom interaction. (Nurvrita, 2020).

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For example, A.I.-based applications that can analyze student learning behavior data open up opportunities for lecturers to get feedback on classroom dynamics. However, reliance on technology can also reduce the personal touch in classroom interactions, which could reduce students' active participation. (Liesa-Orús et al., 2020).. Therefore, lecturers must find a balance between the use of technology and a more personalized approach to class interactions. Active communication skills, cultural understanding, and sensitivity to language nuances are the main focus of English Language Education. (Hajarudin, 2023). To achieve these goals, intensive interaction between lecturers and students is vital, as it helps students understand the use of English on a broader scale, including in real-life situations.

The presence of AI in education also opens up opportunities for lecturers to use technology to create a more engaging learning experience. (Sugiono, 2024). For example, A.I.-based applications can assist lecturers in developing learning materials that are interactive and appropriate to the level of student understanding (Zakiyah et al., 2024). (Zakiyah et al., 2024).. However, this approach must also be balanced with micro-ethnographic observations to ensure that technology effectively improves classroom interactions and does not reduce student engagement (Sturdivant, 2021). (Sturdivant, 2021). Lecturer strategies that combine technology with micro-ethnography approaches have the potential to provide practical solutions in creating more dynamic classroom interactions that are orientated towards practical skill development.

Indonesia's massive, widespread, and complex education system presents significant challenges in its transformation efforts. Considering the national context, Indonesia has made the right choice by integrating technology into education (Wang, Zhang, Sesunan, & Yolanda, 2023). According to data from 2020, approximately 97% of higher education institutions have adopted online learning and blended learning as part of their digitalization strategy in education (Sari, Megawanti, & Setiawan, 2024). Although this figure indicates a high level of technology adoption, several challenges remain in its implementation, including unequal access to technology in remote areas, lecturers' readiness to utilize AI and digital learning platforms, and the effectiveness of classroom interactions in digital environments.

Despite the rapid adoption of technology in higher education in Indonesia, several research gaps remain unaddressed. Most existing studies focus on the effectiveness of technology in improving students' overall learning outcomes. However, limited research specifically examines how technology and AI impact classroom interactions in English Education programs. In this field, verbal and nonverbal interactions play a crucial role in language acquisition and

communication skills. Moreover, studies on classroom interaction in the digital era tend to rely on surveys or quantitative analyses, which provide a general overview but fail to capture the social dynamics within the classroom. Micro-ethnography, a research approach that focuses on in-depth observations of social interactions on a small scale, is still rarely applied in technology-based English Education settings.

Micro-ethnography, a qualitative research approach that focuses on detailed observations of social interactions on a small scale, offers a different perspective on understanding classroom interactions (Bayeck, 2024). Micro-ethnography is a research approach that focuses on sociological meanings through field observations of sociocultural phenomena. In an educational setting, micro-ethnography allows researchers to analyze the nuances of classroom interactions, including verbal and nonverbal communication, power dynamics, and social relationships among students and lecturers. This approach is particularly relevant in the study of English Education, where interaction plays a crucial role in language acquisition and communication skills development (Anwar & Sarjono, 2023).

Through this approach, lecturers can analyze verbal and nonverbal interactions in the classroom, including factors that potentially affect student participation. The application of micro-ethnography in English language teaching in this study program can help lecturers understand students' learning preferences and adjust teaching styles to improve engagement and interaction in the classroom.

The research questions in this study are: how can various strategies be explored to enhance classroom interaction in the English Education study program using a micro-ethnographic approach in the technological era? How does AI function as a tool to support more effective classroom interaction, and what are its impacts on student engagement in the learning process?

In line with these questions, this study aims to explore various strategies that lecturers can use to strengthen classroom interaction in the English Education study program through a micro-ethnographic approach in the technological era. Additionally, this research will analyze the role of AI as a tool in facilitating more effective classroom interactions and its impact on student engagement in the learning process. This study is expected to serve as a practical guide for lecturers in the English Education study program to enhance classroom interactions, ultimately leading to positive effects on students' learning outcomes and English language skills.

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Method

This research uses a literature review as a data collection method. A literature review is a literature exploration technique obtained from various sources, such as physical books, electronic books, scientific articles, and journals relevant to the research theme. These include lecturers' strategies for strengthening classroom interaction in the era of AI and technology in the English Education study program. A literature review was conducted by reading, recording, and managing various literature materials related to the research. The data source used in this research is secondary data, which includes various theories regarding classroom interaction, the micro-ethnography approach, and the use of AI and technology in English language teaching.

The use of a literature review makes it easier for researchers to collect theoretical references related to this research topic, such as the concept of classroom interaction, the influence of technology on student engagement, and various other theories that support the analysis in the context of English language teaching. The research process involved searching, collecting, understanding, and classifying data from various sources, such as books, scientific journals, research articles, and other related literature.

The selection of literature was based on inclusion criteria, namely sources published within the 2020–2025 timeframe, relevant to the research theme, and sourced from indexed journals or credible academic publishers. Meanwhile, the exclusion criteria included literature that lacked direct relevance to the research topic or did not meet established academic standards. The databases and search engines used in this study were primarily from Google Scholar. The keywords used in the literature search included “classroom interaction,” “micro-ethnography in education,” “AI in language teaching,” and “technology in higher education.”

A qualitative descriptive method was used to analyze the data that had been collected. The purpose of this method is to search, collect, and compile data systematically (Sugiyono, 2014). (Sugiyono, 2014). The data collected included theories on classroom interaction, Micro-ethnography techniques, and the influence of AI and technology on teaching approaches in higher education. The analysis was conducted to display and interpret the various aspects that emerged from implementing lecturers' strategies to strengthen classroom interaction in the digital era.

The analysis was conducted through a coding process, which involved identifying key themes in the reviewed literature. This coding was done manually by categorizing the data into several groups, such as lecturer interaction strategies, the impact of technology on student engagement, and the role of AI in

English language teaching. Meanwhile, to ensure the reliability and validity of the data, this study applied source triangulation by comparing various references from indexed journals and academic books. Additionally, a critical evaluation of the sources was conducted to ensure that the collected data is relevant and accountable within the context of academic research.

Results

Research Results

Based on the literature analysis, there are several findings related to lecturers' strategies in strengthening classroom interaction through the micro-ethnography approach in the era of AI and technology in the English Education study program, including the following.

Table 1. Research Results

No.	Findings	Description
1.	Utilization of technology for *personal touch*	Lecturers can use technology to strengthen personal connections with students. According to Munandar et al. (2023) and Satria et al. (2023), while AI and digital platforms make virtual interactions faster and more efficient, an effective strategy still involves personalizing the teaching approach to understand each student's unique needs.
2.	Adaptation to students' learning preferences	Micro-ethnography shows that understanding students' cultural backgrounds, interests, and learning styles is critical to creating meaningful interactions. (Subiyantoro et al., 2023).. Lecturers who use technology to collect and analyze these preferences can adjust their teaching strategies to be more effective. (Sinaga, 2024).
3.	Technology-based collaborative approach	Collaboration through online platforms and AI tools has become essential in the digital age. Research by Muir et al. (2020) showed that strategies that encourage active collaboration between students through online discussions, forums, or joint projects can significantly increase class engagement.
4.	Utilization of real-time feedback	Technologies such as AI make it easier to provide real-time feedback, which supports faster development of student skills (Haleem, Javaid, Qadri, & Suman, 2022). Lecturers who implement this strategy can increase motivation and class interaction by providing relevant and immediate feedback.
5.	Openness to the role of technology in continuous	In Micro-ethnography, openness to technology integration is vital. Effective strategies require an

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learning	understanding that the lecturer's role is that of a facilitator who helps students learn through technology while maintaining authentic and collaborative classroom interactions (Chen, Chen, & Lin, 2020).

The study conducted by Ishak, Kurniawan, & Zainuddin (2019) found that 90% of students responded positively, stating that the use of technology, such as the flipped classroom method, could enhance student learning interactions. Meanwhile, 86.2% of students provided positive feedback regarding interactions with instructors outside the classroom through WhatsApp groups. Additionally, 87% of students felt that online technology facilitated their interactions with peers outside the classroom, while 91% stated that technology-based media made it easier for them to communicate with instructors, especially outside the classroom. These findings indicate that the use of technology in learning is highly effective in improving student-to-student interaction, student-instructor interaction, and engagement with learning materials.

Furthermore, these results highlight the crucial role of digital platforms in fostering a more interactive and accessible learning environment. The positive reception of technology-based communication tools suggests that students value the flexibility and immediacy that these platforms offer, enabling them to seek clarification, engage in discussions, and collaborate beyond traditional classroom settings. Moreover, these findings align with the increasing shift towards blended and online learning models, reinforcing the importance of integrating user-friendly and interactive technologies into educational frameworks. However, while technology enhances communication and engagement, its effectiveness also depends on factors such as digital literacy, internet accessibility, and the ability of instructors to optimize digital tools for pedagogical purposes. Addressing these challenges through proper training and infrastructure development can further maximize the benefits of technology-driven learning interactions.

These results align with the research by Hakim & Mulyapradana (2020), which found that approximately 44.8% of the variation in student satisfaction could be explained by the use of online media and learning motivation. Students reported increased satisfaction with the use of online media, provided there were no issues related to internet connectivity and data limits. The data suggest that technology, particularly online media, played a crucial role in supporting learning interactions during the pandemic, with a primary focus on the platforms most commonly used by students.

Additionally, the study found that other factors, such as interactive teaching methods, flexibility in accessing learning materials, and instructor support in using technology, also contributed to increased student satisfaction. Platforms that offer discussion features, interactive quizzes, and real-time feedback from instructors tend to be preferred, as they enhance student engagement in the learning process. However, despite the significant benefits of technology, challenges remain in its implementation, such as students' limited digital literacy and the lack of training for instructors in optimizing online media as an effective learning tool.

The following is a visual representation in the form of a horizontal bar chart illustrating students' positive responses to the use of technology in learning interactions:

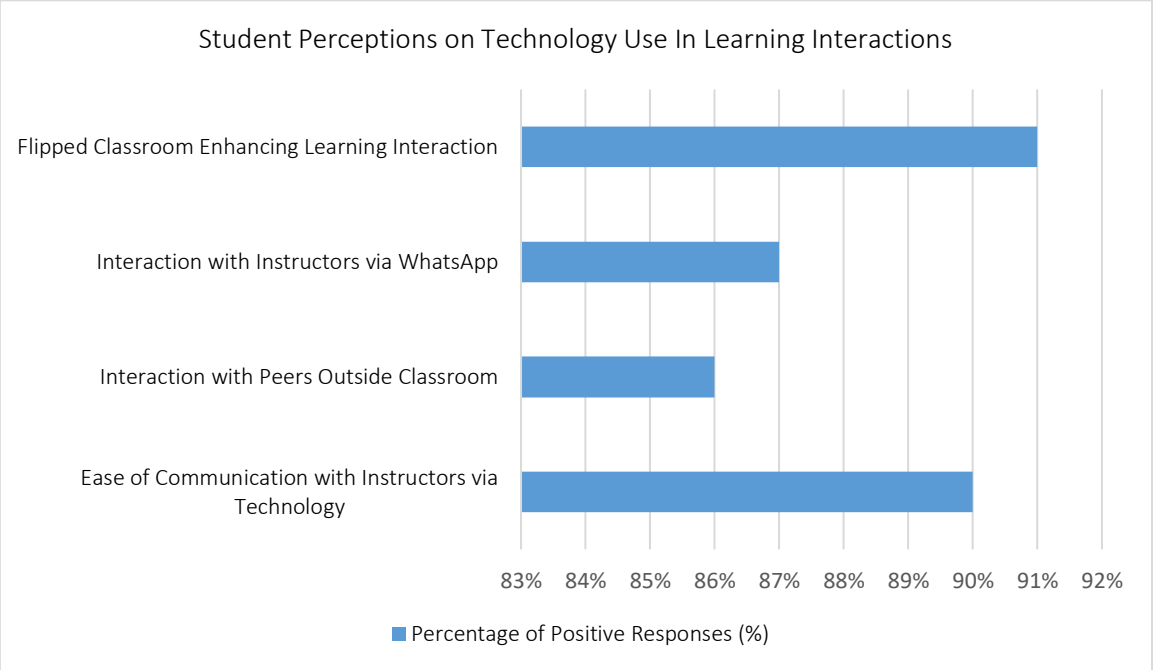

Figure 1. Student Response Data on the Use of Technology in Learning Interactions

1. Personalization in Technology-Based Teaching
   One key finding from the literature is that while AI and digital platforms enable faster and more efficient virtual interactions, a personalized teaching approach remains essential. Munandar et al. (2023) and Satria et al. (2023) highlight that lecturers can strengthen personal connections with students by using adaptive learning technologies that cater to individual needs. For example, AI-driven learning management systems can track student progress and suggest customized learning paths. However, this approach requires lecturers to develop digital competencies to effectively utilize these tools.

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2. Adapting to Students' Learning Preferences
   Micro-ethnography studies emphasize the importance of understanding students' cultural backgrounds, interests, and learning styles to enhance meaningful interactions. Subiyantoro et al. (2023) suggest that lecturers who leverage data analytics to assess learning preferences can tailor their instructional strategies accordingly. Sinaga (2024) found that students who received personalized digital learning materials demonstrated higher engagement than those exposed to generic content. However, some researchers argue that excessive reliance on technology for personalization may lead to decreased student autonomy and overdependence on AI-driven recommendations.
3. Collaborative Learning Through Digital Platforms
   Collaboration using online platforms and AI tools has become integral to student engagement. Muir et al. (2020) found that strategies fostering active participation such as online discussion forums, group projects, and peer reviews significantly improve classroom interaction. Platforms like Google Classroom, Padlet, and Microsoft Teams have been identified as effective tools for facilitating peer collaboration. However, some studies caution against the risk of digital divide issues, where students with limited access to technology may struggle to participate equally.
4. Real-Time Feedback Mechanisms
   AI-powered tools allow lecturers to provide instant feedback, enabling students to refine their understanding in real time. Haleem et al. (2022) argue that real-time feedback enhances motivation and accelerates skill acquisition. Tools like Grammarly, Turnitin, and AI-based grading systems have been widely adopted in higher education. Nevertheless, concerns persist regarding the accuracy and fairness of AI-generated feedback, particularly in subjective assessments such as essay writing and critical thinking tasks.
5. The Role of Technology in Continuous Learning
   An essential aspect of micro-ethnography is recognizing that lecturers serve as facilitators rather than mere information providers. Chen et al. (2020) emphasize that technology should complement, rather than replace, direct student-teacher interactions. A study by Hakim & Mulyapradana (2020) found that while 44.8% of student satisfaction variance could be attributed to online media use and learning motivation, some students expressed frustration with technical issues such as unstable internet connections and limited access to digital devices.

Based on the findings from various kinds of literature, lecturers' strategies in strengthening classroom interaction through micro-ethnography approaches in the era of AI and technology emphasise the urgency of utilising technology to build more personal connections with students. Although technology allows for faster and more efficient interactions, lecturers must adjust their teaching approach according to students' needs. This personalised approach is crucial in maintaining students' active engagement in the classroom. In addition, understanding students' cultural backgrounds, interests, and learning preferences is essential in enhancing meaningful interactions. Micro-ethnography helps lecturers to analyse students' learning preferences and apply them in a more effective teaching design.

Using technology for collaboration and real-time feedback is also part of the strategies that can improve classroom engagement. Online platforms and AI-based tools make it easier for students to collaborate actively through discussions, forums, and joint projects. Real-time feedback has also been shown to increase student motivation and support faster skill development. Furthermore, lecturers' openness to the role of technology in continuous learning ensures that technology is used as a tool, not a substitute for direct interaction.

Discussion

The Urgency of Micro-ethnography Approach in Lecturer's Strategy to Strengthen Classroom Interaction in English Education Study Program

The micro-ethnography approach is urgent in improving classroom interaction, especially in the digital era of technology and AI. This approach allows lecturers to understand in more detail the social and cultural lives of students and the individual factors that influence how they interact with learning materials. In the English Education study program, students come from diverse backgrounds in terms of culture, learning styles and language preferences. According to Green et al. (2020), micro-ethnography allows lecturers to explore and analyze these elements to create a more inclusive and personalized learning experience.

In addition, the micro-ethnography approach helps lecturers recognize the classroom's social dynamics. Students learn from the material provided and interact with their peers, each of whom brings different perspectives and values. Through micro-ethnography, lecturers can map students' social interactions, identify emerging communication patterns, and adapt teaching methods to facilitate more productive and collaborative interactions. This is particularly relevant in English language learning, where communication skills among students play a significant role in language acquisition.

Findings Cosentino and Giannakos (2023) suggest that this approach is also crucial in addressing the challenges posed by using technology in education. While technology offers convenience and efficiency, it can also create social

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distance between lecturers and students, as well as between students themselves. Therefore, lecturers can identify how technology affects classroom interactions and find ways to optimize the use of technology to maintain personal closeness between lecturers and students. Through in-depth observation of learning practices, lecturers can design strategies that combine technology with more meaningful in-person interactions.

In an era where technology increasingly influences education, the micro-ethnography approach allows lecturers to remain relevant and adaptive. It provides a deeper understanding of how students use technology to learn and how they respond to instruction. Lecturers can design more dynamic teaching, combining traditional teaching techniques with technology that facilitates learning and interaction in the classroom by utilizing data collected through micro-ethnography. Lecturers who understand this can improve the quality of technology-based learning more effectively.

Micro-ethnography also increases student engagement (Shigeta et al., 2024). This approach encourages lecturers to know students' needs and expectations and understand how they learn better. In English Education study program, where speaking and writing skills are the main focus, knowing students' individual preferences is crucial to designing appropriate materials. Lecturers who know their students' learning style tendencies can create a classroom environment that is more inclusive and responsive to each student's needs, making classroom interactions more meaningful.

In the long run, implementing the micro-ethnography approach also helps lecturers create stronger relationships with students. Students who feel understood and valued by lecturers tend to be more motivated to actively participate in learning in person and through digital platforms. When implemented effectively, this approach can improve the quality of classroom interactions, strengthen lecturer-student relationships, and result in a more sustainable learning experience. (Bridges, Chan, Chen, Tsang, & Ganotice, 2020).

Utilizing Technology for Personal Touch in Classroom Interaction

Technology in the Artificial Intelligence (AI) era provides excellent opportunities for lecturers to build personalized relationships with students, even amid a fast-paced digital environment. While technology enables a more efficient and flexible learning process, a personalized approach is still needed to create meaningful interactions. In this era, lecturers can use AI to understand students' needs, such as learning styles, comprehension levels, and preferences. This personal *touch* is often decisive in creating a more engaging learning atmosphere where students feel supported individually, not just as part of a large group.

The micro-ethnography approach applied by lecturers is increasingly relevant in this digital era. Through this method, lecturers can observe students' interaction patterns and responses through various digital platforms, providing a more comprehensive picture of the characteristics of each student. These observations include how students interact inside and outside the classroom and their preferred learning patterns when dealing with technology. The micro-ethnography approach allows lecturers to tailor more adaptive teaching methods, help students overcome learning difficulties, and pay special attention to students who need more support. In this case, AI helps lecturers analyze student interaction data more easily and quickly, making the learning adaptation process more efficient.

AI technology also offers tools to automatically create student learning profiles, which lecturers can use to personalize teaching materials. With profiles created based on data generated by students during the learning process, lecturers can devise interaction strategies that suit each individual's learning preferences. For example, some students may learn more effectively with visual methods or interactive simulations, while others may favor written material or discussion. This personalized approach, as highlighted by Munandar et al. (2023) and Satria et al. (2023), is crucial to increase students' motivation and active participation.

In the age of AI, lecturers' skills in managing digital interactions while maintaining authentic relationships with students are becoming increasingly important. Technology only partially replaces the personal aspect of teaching but becomes a tool that enriches the interaction process. Through effective management of digital interactions, lecturers can maintain the element of warmth and empathy that is essential in the learning process. Students feel cared for not only as class participants but also as individuals with unique needs and challenges. Therefore, lecturers must develop teaching approaches integrating technology with sensitivity to social and emotional dynamics in the classroom.

AI in education can facilitate the personalization of learning, allowing lecturers to tailor materials and delivery based on students' learning preferences and abilities. However, sophisticated digital interactions must still be balanced with the presence of lecturers who provide direct attention, as human connection remains an important factor in meaningful learning. For example, through direct question and answer sessions, group discussions, or personalized feedback provided by lecturers, students can feel their teachers' presence and deep concern.

In addition, technologies such as online learning platforms, collaborative apps, and AI tools can support interaction between lecturers and students outside of class hours. This allows students to access materials flexibly under lecturers' clear guidance and direction. Thus, lecturers balance the efficient use of technology and humanized relationship management, ultimately enriching

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students' learning experience.

Increased Engagement Through Technology-Based Collaboration

Active collaboration between lecturers and students is increasingly supported by digital platforms that make it easier for students to work together in various activities, such as group discussions, online forums, and complex collaborative projects. Digital technology in education has opened a new space for lecturers to create interactive and adaptive interaction methods, allowing students to participate in a more flexible and dynamic learning environment. Technology allows students to collaborate without time and space constraints, allowing them to interact more outside of lecture hours. This collaboration becomes more accessible to access and organise, increasing their engagement in learning.

As Muir et al. (2020) suggested, technology-based collaborative strategies can increase student engagement more effectively than traditional methods. Digital platforms speed communication and allow students to exchange ideas in real-time, forming rich and in-depth discussions. This collaboration facilitates greater engagement in the classroom, where students are not only recipients of information but also active participants in the development of the material. The existence of technology support facilitates classroom interaction into an open forum where students learn from each other, develop critical thinking, and build new ideas collectively.

Furthermore, lecturers can optimise digital platforms to provide space for this active collaboration, such as by creating structured, task-oriented online discussion groups. Lecturers can also utilise interactive features, such as virtual discussion boards or collaborative apps, specifically designed to strengthen student engagement. With these flexible discussion spaces, it is easier for students to contribute and provide feedback to their peers. On the other hand, lecturers can also monitor each group's progress directly, provide guidance as needed, and ensure that all students have an active role in their projects.

Digital collaboration also has the potential to strengthen students' ability to work in teams and develop essential communication skills. In 21st-century learning, working together in interdisciplinary teams and communicating effectively is crucial. Collaborative projects using digital platforms force students to coordinate more effectively, manage time, share roles and resolve conflicts that arise independently. This experience helps them understand the learning material more profoundly and prepares them for future work challenges that increasingly require collaborative skills and adaptability.

In addition, active collaboration through technology can help students better understand and internalise the material. Students are more likely to encounter complex concepts if they learn independently by discussing and working on projects. Students can strengthen their understanding and see the material from different perspectives through discussion and questioning with classmates. This interaction can raise critical questions and encourage students to think more analytically and reflectively about the material they are learning, making learning more effective.

Technology can also facilitate more intensive and organised discussions, for example, by using learning platforms that make it easier for students to collaborate in real time, share ideas, and provide feedback to each other. In addition, technology-based collaborative tools, such as discussion forums, file-sharing applications, or virtual spaces for group simulations, can optimise students' engagement in joint projects, even in different locations. These technologies also help students access relevant resources, which may be challenging to find if they rely solely on classroom learning materials. Students can dig deeper into specific topics and integrate new knowledge into their understanding.

Collaboration facilitated by technology also allows students to build communication, leadership and teamwork skills essential in the professional world. Students not only master the academic material but also develop the social skills and problem-solving skills needed to face future challenges. Thus, active collaboration through technology becomes one of the critical aspects of creating a more holistic and sustainable learning experience.

Using Real-Time Feedback for Student Skill Development

AI technology has opened up new opportunities for lecturers to provide immediate and relevant feedback to students, which is vital in accelerating their skill development. In traditional learning environments, feedback often takes time, especially if done manually. AI helps lecturers assess, provide feedback, and monitor student progress in real-time, creating a more responsive learning ecosystem. Timely feedback helps students understand their strengths and areas for improvement, making their learning process more effective and sustainable.

The urgency of real-time feedback is in terms of timeliness, relevance, and contextuality. When lecturers can provide feedback as soon as students complete an assignment or show a response in a class discussion, students can instantly improve or deepen their understanding. With AI, lecturers can also provide more personalised feedback, tailoring feedback based on students' abilities and needs. This helps students to feel more personally supported, which increases their confidence in the learning process.

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Findings from Haleem et al. (2022) revealed that this relevant and immediate feedback significantly impacts students' motivation to attend classes. When students feel that they are getting concrete and immediate direction from the lecturer, they are more likely to stay motivated and actively engage in class activities. Quick and timely feedback also indicates that the lecturer is genuinely concerned about their progress, which strengthens the relationship between lecturer and students and creates a more supportive classroom atmosphere. In addition to increasing motivation, real-time feedback through AI technology also accelerates the process of mastering the skills being learnt. Students no longer have to wait long to learn about mistakes or aspects that need improvement, as they can immediately apply the feedback in their next assignment or project.

In English classes, students can immediately receive corrections or suggestions for improving grammar or vocabulary. This speeds up improvement and makes learning more memorable, as students can immediately understand the impact of the correction. In the long run, implementing real-time feedback creates a more dynamic and responsive learning environment. Students will feel supported and motivated to continue developing, knowing they always have the necessary guidance. In addition, this responsive environment encourages students to be more adventurous in experimenting and trying new approaches, as they know there is immediate guidance they can rely on when they encounter difficulties.

This responsive environment is highly relevant in preparing students for the challenges of the working world that require quick adaptability and problem-solving skills. The application of AI technology for real-time feedback not only benefits students but also assists lecturers in managing classroom interactions more efficiently. Lecturers can utilise AI to identify common patterns in errors or difficulties experienced by students so that they can design more effective and relevant teaching strategies. For example, AI can analyse students' exam results or assignments to detect areas that need special attention and provide recommendations for lecturers to develop more focused teaching materials on topics that are difficult for most students to understand.

In addition, using AI helps lecturers provide faster and more specific feedback to each student so that they can immediately recognise mistakes and necessary improvements. It also allows lecturers to focus on the more personalised aspects of teaching, such as directly guiding students in problem-solving or providing deeper motivation. AI can enrich the quality of interaction between lecturers and students, making it more effective and individualised. This enhances the overall learning experience while preparing students to be more adaptive and ready to face the increasingly complex dynamics of the world of

work.

Although this study demonstrates that integrating technology into learning can enhance student-instructor interactions, several limitations must be considered. One of the main challenges is the digital divide that still exists in various regions, particularly for students with limited access to technological devices and stable internet connections. Additionally, not all instructors possess adequate technological skills, which often leads to suboptimal use of technology in teaching. Another factor is the distraction caused by technology, as students may lose focus due to the vast amount of information available in the digital world.

This study aligns with the findings of Hakim & Mulyapradana (2020), which indicate that the use of online media can improve student satisfaction in learning, provided that technical issues are minimized. However, other studies, such as the research conducted by Mujahid, Syafiq, Ubaidillah, & Nasution (2024), highlight that technology-based interactions have not yet fully replaced the effectiveness of face-to-face learning, especially in courses that require hands-on practice. The following are some key challenges in implementing technology in learning:

1. Limited digital skills among instructors. Not all instructors have sufficient knowledge of educational technology, making it necessary to provide more intensive training on the use of Learning Management Systems (LMS) and other interactive tools.
2. Accessibility and infrastructure. Not all students have equal access to technology, especially in areas with limited internet infrastructure. A possible solution is to provide subsidized internet access or flexible access to computer labs for students.

To enhance the effectiveness of technology integration in learning, some recommendations for educational practitioners include:

1. Developing technology training programs for instructors. Educational institutions should conduct regular training sessions on the use of educational technology to ensure that instructors can utilize it optimally.
2. Providing more inclusive technology. Universities should collaborate with internet service providers to ensure that students have sufficient access to online learning.

Conclusion

Technology and micro-ethnography approaches in education, including in English Education study program, are crucial to strengthening classroom interactions in the digital era. Technologies such as AI provide opportunities to understand students' learning preferences more personally, while micro-ethnography approaches help lecturers create inclusive and adaptive learning experiences. Technology-based collaboration also enriches student engagement, preparing them for future workplace challenges that require practical collaboration and communication skills. The limitation of this study lies in the

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limited focus on the English Education study program in one institution. In addition, using the micro-ethnography approach is constrained by observation for a limited time, which may affect the accuracy of broader findings. Future research is recommended to develop the research by expanding the scope of other institutions and study program, also using a *mixed methods* approach that combines quantitative and qualitative to gain a more comprehensive understanding of the use of technology in classroom interaction. In addition, future research could explore more deeply the long-term impact of the strategies used on student motivation and academic success.

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