Student engagement in English language learning with artificial intelligence (AI) chatbot from the perspective of planned behavior theory

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Abstract

This qualitative study investigated student engagement in English language learning facilitated by Artificial Intelligence (AI) chatbots, utilizing the Planned Behavior Theory (PBT) lens. Employing a phenomenological approach, this study explored the lived experiences and perceptions of 15 participants enrolled in a private higher education institution in Aceh, Indonesia. Data collection involved semi-structured interviews, focus group discussions, and observation to explore students' attitudes, social influences, perceived behavioral control, and the alignment of perceptions with engagement. Thematic analysis was applied to analyze the data, revealing students' attitudes towards AI chatbots influenced by perceptions of utility, social norms, and technological proficiency. The triangulation of findings from interviews and focus groups highlighted converging themes and provided a comprehensive understanding of student engagement with AI chatbots in English language learning. Participants navigated a complex interplay between individual beliefs and external factors in engaging with AI chatbots for language learning. This study emphasizes the importance of considering sociocultural contexts and user experience in designing and implementing AI-driven educational tools. The insights gleaned from this research contribute to the broader discourse on technology-mediated language learning and inform strategies for enhancing student engagement in English language education.

Keywords: AI chatbot; phenomenological approach; Planned Behavior Theory (PBT); student engagement; thematic analysis

INTRODUCTION

The integration of Artificial Intelligence (AI) into education has been steadily increasing, revolutionizing the way students learn and interact with educational content from early childhood to higher education (Crawford et al., 2024; Ng et al., 2023; Su & Yang, 2023). AI technologies such as machine learning, natural language processing and intelligent tutoring systems have created new opportunities for personalized and adaptive learning experiences. One area where AI has shown significant promise is language learning, where AI-driven tools and applications can offer tailored support, immediate feedback, and immersive language practice environments. Kong et al. (2024) emphasize the growing necessity of AI literacy in education, highlighting its importance for workforce readiness, informed decision-making, ethical understanding, critical thinking, and fostering innovation. They advocate a comprehensive educational approach that includes technical skills and ethical, social, and critical perspectives on AI, urging collaboration among educators, policymakers, and industry stakeholders to develop effective AI literacy curricula.

Chatbots are designed to simulate human conversation, providing learners with an interactive platform to practice language skills in real-time (Liu & Ma, 2024). With the advancement of AI algorithms, chatbots understand and respond to user inputs with a high degree of accuracy, making them effective virtual tutors for language learners. AI chatbots engage students in various language exercises such as vocabulary building, grammar correction, and conversational practice, thereby enhancing their overall learning experience. Polakova and Klimova (2024) and Liu et al. (2024) explore the use of AI chatbots in English language learning, which offers several advantages. First, they provide a non-judgmental and patient-practice partner, which can be particularly beneficial for

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students who are hesitant to practice speaking in front of others. Second, AI chatbots are available 24 hours a day, allowing learners to practice at their own pace and convenience. Continuous accessibility supports consistent practice, which is crucial for language acquisition. Third, AI chatbots adapt to the individual learning needs of each student by offering personalized feedback and customized learning paths based on the learners' progress and performance.

Despite the growing adoption of Artificial Intelligence (AI) chatbots in educational settings, particularly language learning, there is a notable gap in the qualitative understanding of how these tools affect student engagement. While numerous studies have quantitatively assessed the effectiveness of AI chatbots in improving language skills, there is limited qualitative research exploring the nuanced experiences and perceptions of students who use these tools. Existing research tends to focus on measurable outcomes such as test scores, vocabulary acquisition, and grammatical improvements. However, these studies have often overlooked the subjective and contextual factors that influence student engagement, such as individual attitudes towards AI chatbots, the role of social influences, and students' perceived control over their learning processes. Engagement is a multifaceted construct that encompasses emotional, cognitive, and behavioral dimensions, and it is crucial to understand how AI chatbots impact these different aspects from students' perspectives (Finn & Zimmer, 2012).

Planned Behavior Theory (PBT) provides a valuable framework for investigating these factors, suggesting that behavior is influenced by attitudes, subjective norms, and perceived behavioral controls (Ajzen, 1991). However, a small number of researchers have applied PBT to the context of AI-driven language learning. This gap limits our understanding of how students' beliefs and social environments shape their interactions with AI chatbots and how these interactions affect their engagement and learning outcomes. This study addresses this gap by qualitatively exploring students' lived experiences and perceptions of using AI chatbots in English language learning. By focusing on the subjective experiences of learners, this study aims to uncover the motivational and contextual factors that drive engagement. Understanding these factors can lead to the development of more effective AI chatbots that are better aligned with students' needs and preferences, ultimately enhancing their learning experiences and outcomes in English language education.

Given this backdrop, the purpose of this study is to explore students' lived experiences and perceptions concerning the integration of AI chatbots into English language learning. To meet this objective, this study poses the following research question:

1. How do students articulate their attitudes towards using AI chatbots for English language learning?
2. What social influences (subjective norms) impact students' engagement with AI chatbots?
3. How do students construe their control over using AI chatbots in language learning?

This study aimed to understand students' personal evaluations and emotional responses to AI chatbots, examine the social influences that affect their engagement, and analyze their perceived ability to use these tools effectively. Furthermore, this study seeks to offer a comprehensive account of how these factors (attitudes, subjective norms, and perceived behavioral control) manifest in students' engagement with AI chatbots, encompassing emotional, cognitive, and behavioral dimensions. The study also intends to draw practical implications for educators, developers of AI chatbots, and policymakers, providing recommendations for enhancing student engagement and learning outcomes through the effective integration of AI chatbots in language education. By addressing these objectives, this study aims to fill the existing gap in qualitative research on AI chatbots in English language learning, offering valuable insights into the factors that influence student engagement and laying the groundwork for improving the design and implementation of AI-driven educational tools.

AI chatbots in English language learning

AI chatbots have emerged as transformative tools in the field of English language learning, offering personalized and interactive learning experiences. The application of AI chatbots in language education influences natural language processing (NLP) and machine learning algorithms to simulate human-like conversations, providing learners with opportunities to practice and improve their

language skills in real-time. Research indicates that AI chatbots significantly enhance the language-learning process. Crawford et al. (2024) found that AI chatbots positively impacted students' sense of social support, which directly improved self-reported academic performance and indirectly influenced retention intentions. However, they had mixed effects on loneliness and belonging. AI chatbots offer benefits and limitations as social support for students. Additionally, chatbots improve learners' engagement and motivation, leading to better learning outcomes (Fabiyi, 2024; Ruan et al., 2018). The interactive nature of chatbots allows repetitive practice in a low-stress environment, which is beneficial for mastering language skills (Chen and Hsu, 2020). One of the primary benefits of AI chatbots is their ability to provide personalized learning experiences. Chatbots can adapt to the individual needs and proficiency levels of learners by offering tailored exercises and feedback. This adaptability is particularly advantageous in language learning due to different rates of learners' progress. Furthermore, chatbots provide round-the-clock availability, providing learners with flexible access to language practice outside a traditional classroom setting (Meyer von Wolff et al., 2020).

Satar and Akcan (2018) contend that learners often feel less intimidated when interacting with chatbots, resulting in an increased willingness to engage in conversational practice. However, AI chatbots also face several challenges. One of the primary issues is the limitations of current NLP technologies. Despite advancements, chatbots sometimes struggle to understand and generate contextually appropriate and grammatically correct responses, particularly in more complex or nuanced conversations (Jia et al., 2020). Another challenge is the lack of emotional intelligence in chatbots, which negatively impacts the learning experience (Pérez-Marín & Pascual-Nieto, 2011). Future research and development of AI chatbots for English language learning are likely to focus on improving NLP capabilities and enhancing the emotional intelligence of chatbots to create more supportive and empathetic learning environments. Thus, integrating multimodal inputs, such as voice and facial recognition, could provide a more immersive and interactive learning experience (Shadiev et al., 2018). As technology continues to advance, AI chatbots may become an increasingly valuable tool for both language learners and educators.

Planned Behavior Theory and technology adoption in educational contexts
The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), presents a robust approach to comprehending and anticipating human actions in a range of contexts, including the adoption of technology in educational settings. TPB asserts that an individual's intention to perform a behavior is the most direct predictor of that behavior and is influenced by three primary components: attitudes toward the behavior, subjective norms, and perceived behavioral control. These components have been thoroughly investigated in the context of educational technology adoption, shedding light on the factors that impact educators' and students' readiness to integrate new technologies into their teaching and learning processes. Subjective norms refer to the perceived social pressures to perform or not perform a particular behavior. In the context of educational technology adoption, these norms stem from various sources, including colleagues, administrators, students, and the broader educational community.

Empirical studies indicate that subjective norms significantly impact technology adoption decisions. He et al. (2018) investigated regulatory focus and its impact on technology acceptance, focusing on perceived ease of use and usefulness as efficacy. Furthermore, peer influence and professional communities play a crucial role in shaping educators' normative beliefs, as highlighted by Liu et al. (2010), who observed that collaborative environments and peer support systems significantly enhanced teachers' willingness to adopt innovative technologies. Research by Šumak et al. (2011) combines TPB and the Technology Acceptance Model (TAM) to provide a comprehensive view of teachers' technology acceptance, revealing that perceived usefulness and perceived ease of use, mediated by attitudes, subjective norms, and Perceived behavioral control (PBC), significantly influence technology adoption intentions. Additionally, recent studies have increasingly focused on contextual factors, such as institutional policies, cultural influences, and the rapid evolution of educational technologies, suggesting that future research should adopt a more dynamic and context-sensitive approach.

Dimensions of student engagement in learning environments
Student engagement within learning environments encompasses multiple dimensions critical to educational outcomes. Behavioral engagement, characterized by active participation and completion of tasks, forms a foundational aspect. Cognitive engagement denotes the intellectual investment and utilization of effective learning strategies, influencing the depth of comprehension and problem-solving skills (Appleton et al., 2008). Emotional engagement pertains to students' affective responses, including enthusiasm and a sense of belonging, which significantly impact motivation and learning. Social engagement, involving interactions with peers and educators, fosters collaborative learning environments and supports academic progress. These dimensions collectively contribute to a comprehensive understanding of how students engage with learning tasks and environments, highlighting the intricate interplay between behavioral, cognitive, emotional, and social factors in educational contexts.

METHOD
Research Design
This study employed a qualitative phenomenological research design to explore the dimensions of student engagement in learning environments facilitated by AI chatbots. The phenomenological approach was chosen to deeply understand the lived experiences and perceptions of students using AI chatbots for English language learning (Creswell, 2013). This study involved 15 students who were actively enrolled in English language courses at a private University in Aceh, Indonesia. Purposive sampling was utilized to select participants who had prior experience using AI chatbots for language learning. This approach ensured that the sample was relevant and could provide rich, detailed data about their interactions with the technology.

Semi-structured interviews were conducted to investigate individual students' experiences, attitudes, subjective norms, and perceived behavioral control related to the use of AI chatbots. These interviews allowed for flexibility and depth, enabling participants to express their thoughts and feelings comprehensively (Seidman, 2013). Group discussions were organized to gather insights into shared experiences and the social dynamics influencing students' engagement with AI chatbots. The interactive nature of focus groups facilitated the exploration of collective attitudes and norms (Krueger & Casey, 2015). Participant observations were carried out during language learning sessions where students used AI chatbots. These observations provided a contextual understanding of how students interacted with the chatbots in real-time, offering a direct view of their engagement behaviors.

Research instruments
A detailed guide comprising open-ended questions was developed based on the constructs of the Theory of Planned Behavior (TPB) and engagement dimensions. The questions aimed to uncover students' personal experiences and perceptions regarding AI chatbot use in language learning (Ajzen, 1991; Fishbein & Ajzen, 2010). An observation protocol was created, including a checklist and structured notes, to systematically document students' interactions with AI chatbots. The protocol focused on capturing behaviors, engagement levels, and any notable patterns in their usage of the technology. This methodological framework was designed to comprehensively explore the various dimensions of student engagement with AI chatbots in English language learning, providing a nuanced understanding of their experiences and the factors influencing their engagement. List of questions and observation rubric can be seen in the appendices.

Participants and data collection
The recruitment of participants enrolled in English language courses at a university in Aceh who have prior experience using AI chatbots for learning purposes. Purposive sampling was employed to ensure that participants possessed relevant insights into the research topic. Semi-structured interviews and focus groups were conducted in private, conducive settings to encourage open dialogue and in-depth exploration of participants' perspectives (Seidman, 2013). Interviews and focus groups followed

detailed guides designed to probe attitudes, subjective norms, and perceived behavioral control regarding AI chatbot usage. This guide was informed by the theoretical framework of Planned Behavior Theory (Ajzen, 1991; Fishbein & Ajzen, 2010), emphasizing factors influencing technology adoption and engagement in educational contexts. Participants' native language is Acehnese (local language), and Indonesian is their formal language. The interview and focus group discussion were done in Indonesian as their formal language. Participant observations were conducted in natural learning environments (classrooms) to observe student interactions with AI chatbots in real-time. An observation protocol guided systematic data collection, capturing behavioral responses, frequency of interactions, and social dynamics related to AI chatbot use.

The study was conducted over a period of 10 months, from August 2023 to May 2024, encompassing two academic semesters. One of the researchers also participated as a lecturer in participants' daily classes. This involvement allowed for a deeper understanding of the classroom dynamics and provided firsthand experience with the integration of AI chatbots in the learning process. This extended timeframe allowed for the observation of classroom interactions over multiple cycles of chatbot usage, providing a comprehensive view of student engagement and adaptation to the technology. All participants were provided with detailed information about the study and gave informed consent before participating. Confidentiality was maintained throughout the study, and data were pseudonyms to protect participants' identities.

Data analysis

Thematic analysis served as the primary methodological approach to analyze qualitative data collected through semi-structured interviews, focus groups, and participant observations in this study on student engagement with AI chatbots in English language learning contexts. According to Braun and Clarke (2006), thematic analysis involves systematically identifying patterns and themes within data to gain insights into participants' experiences and perceptions. Transcripts from interviews and focus groups underwent rigorous coding to extract themes related to students' attitudes, subjective norms and perceived behavioral control concerning AI chatbots. This method facilitated the exploration of how these factors influence engagement with technology-enhanced learning tools. Furthermore, participant observations were conducted to capture behaviors and interactions indicative of engagement levels and the influence of social norms in natural learning environments. Observational data were analyzed using structured field notes and checklists to document patterns of interaction and contextual factors impacting student engagement.

Triangulation of data from multiple sources (interviews, focus groups, and observations) enhanced the validity and reliability of findings by corroborating insights and providing a comprehensive understanding of the phenomena under investigation (Denzin & Lincoln, 2018). This methodological rigor aligns with the qualitative research principles aimed at capturing the complexity of student experiences with AI chatbots in educational settings.

FINDINGS AND DISCUSSION

This study investigated the extent and nature of student engagement with AI chatbots specifically designed for English language learning, utilizing the theoretical framework of the Theory of Planned Behavior (TPB). The findings presented include (1) students' attitudes towards AI chatbots, (2) the significant influence of social norms on students' engagement with AI chatbots, and (3) Perceived control over using AI chatbots. The findings reveal nuanced insights into how students interacted with and perceived the AI chatbot within the context of language education.

Students' attitudes towards using AI chatbots

Findings from this study reveal a spectrum of attitudes towards AI chatbots among students engaged in language learning. These attitudes range from enthusiasm and appreciation for the chatbots' ability to provide immediate feedback and personalized learning experiences to concerns regarding their reliability, particularly in handling complex language tasks. The diversity in these attitudes underscores the critical importance of considering individual preferences and needs when designing

and implementing AI-driven educational tools. Such considerations are vital for effectively enhancing student engagement and optimizing the educational benefits of AI technology in language learning contexts. The following excerpts provide a glimpse into how students perceive and interact with the AI chatbot in different contexts, reflecting their attitudes, behaviors, and experiences during language learning activities.

> "I find the chatbot really helpful because it gives me instant feedback on my pronunciation. I can practice speaking without feeling embarrassed in front of the class." (Nisa, interview)

> "Using the chatbot together in the class has been fun. We challenge each other with different questions, and it feels like a game sometimes." (Salsa, FGD)

During the observation, students were observed using the AI chatbot independently in the classroom. They appeared engaged, with many actively typing responses and repeating phrases aloud to practice pronunciation. Some students paused to read the chatbot's explanations before continuing with the next exercise. Despite her high confidence in using AI chatbots, one of the participants, Nisa, identified usability factors like advertisements during extended use that may impact sustained engagement. Another participant, Mira, said some feature locks for premium users only. While acknowledging AI chatbots' capability for accurate translation, Ais noted occasional inconsistencies, suggesting a need for ongoing refinement of AI technologies to meet user expectations. The ability of students to critically evaluate disciplinary information obtained from AI chatbots is essential (Chiu, 2023). Developing critical reasoning and thinking skills is a prerequisite for students engaging with Chatbot in their learning process. These skills enable students to discern the quality and reliability of the information provided, ensuring more effective and informed use of AI-generated content in their educational endeavors. Students need to learn how to critically assess the information provided by AI chatbots and start curating it effectively (Tlili et al., 2023). It is crucial for future educators to impart critical reasoning and thinking skills during foundational learning.

Participants' responses in interviews, focus group discussions, and observation highlight a dual perception of the AI chatbot as both a beneficial learning tool and a source of concern. All 15 participants expressed enthusiasm for the chatbot's immediate feedback and personalized learning experiences, noting its ability to enhance language practice without fear of judgment. For instance, Nisa described the chatbot as "helpful" for improving pronunciation skills and providing a safe space for practice. On the contrary, concerns were voiced regarding the chatbot's reliability, particularly in handling complex language tasks. Salsa mentioned during a group discussion that while using the chatbot together was enjoyable, occasional misunderstandings occurred, which could be frustrating. This sentiment was echoed in observation notes, where instances of students pausing to review and rephrase responses suggested occasional challenges in understanding and communicating effectively with the chatbot. These insights underline the importance of balancing the technological benefits of AI chatbots with considerations of their practical limitations. Understanding these dynamics is crucial for designing AI-driven educational tools that effectively support and enhance student engagement in language learning contexts.

Participants varied attitudes towards the AI chatbot align closely with the constructs of Planned Behavior Theory (PBT), which posits that attitudes, subjective norms, and perceived behavioral control influence behavioral intentions and subsequent behaviors. The positive attitudes expressed towards the chatbot's immediate feedback and personalized learning experiences reflect favorable perceptions of its utility and effectiveness in enhancing language practice. These perceptions align with PBT's emphasis on the positive evaluation of behavior as a determinant of behavioral intention. On the other hand, concerns about the chatbot's reliability in handling complex language tasks indicate perceived limitations in its efficacy, which can affect perceived behavioral control and subsequent adoption behaviors. According to Ajzen (1991), perceived behavioral control encompasses the perceived ease or difficulty of performing a behavior, influenced by factors such as technical reliability and user proficiency. Nisa, Mira, and Ais's frustration during group discussion highlights discrepancies between expected and actual outcomes, influencing attitudes towards continued engagement with the chatbot. Observational data further supports these findings by

documenting instances where students paused to rephrase responses, suggesting efforts to overcome perceived challenges in communication with the chatbot.

The influence of social norms on students' engagement
Participants' experiences emphasize the significant influence of social norms on their engagement with AI chatbots. Peer influence emerges as a strong motivating factor, with participants feeling compelled to use the chatbot due to the popularity and endorsement of their peers or teachers. These findings align with existing literature on the role of social factors in shaping technology adoption and usage behaviors among students (Grgurović, 2013). The data from semi-structured interviews, group discussions, and observations indicate that social norms significantly influence students' engagement with AI chatbots. The findings reveal that peer influence is a critical motivating factor, with participants frequently citing the popularity and endorsement of their peers as primary reasons for their adoption and use of the chatbot.

The interviews provide detailed insights into how social factors impact individual decisions to use AI chatbots. For instance, Nana highlighted peer influence as a major motivator, stating:

"Honestly, it was because my friends were all talking about it and using it. They kept saying how helpful it was for their studies, so I decided to give it a try."

Similarly, Zara emphasized the role of social influence:

"One of my friends said that she used perplexity to help her in doing the assignment. Seeing my classmates using it and sharing their positive experiences made me curious and more open to trying it myself."

These responses underscore the importance of social validation and the desire to conform to group behaviors, aligning with existing literature on the social determinants of technology adoption (Maruping et al., 2017).

Group discussions further illuminate the communal aspects of AI chatbot adoption. In one discussion, participants explicitly linked their usage of the chatbot to peer behaviors:

"For me, it was seeing how much it helped my friends with their assignments. They were always talking about it, so I felt like I should use it too." (Liz, Group Discussion)

"It's like, when everyone around you is using it and benefiting from it, you don't want to miss out." (Nana, Group Discussion)

These comments suggest a strong social component where peer usage not only sparks interest but also reinforces the perceived value of the chatbot through shared experiences. This finding supports the notion that social influence and peer pressure can significantly drive technology adoption, as suggested by social influence theory (Aluri & Tucker, 2015; Kelman, 1958).

Observational data corroborate the insights from interviews and group discussions. As a participant observer in a recent classroom session, the researchers introduced the EnglishScore app to students to gauge their general English proficiency levels. Observing their initial interactions with the app, it was clear that many students encountered difficulties navigating its features, as it was their first time using it. This challenge prompted a notable shift in classroom dynamics, where students spontaneously formed small groups to discuss and demonstrate the app's functionalities to each other. This collaborative problem-solving was illuminating. The students' discussions were filled with trial and error, shared insights, and collective troubleshooting, embodying a peer-assisted learning environment. Their willingness to support one another not only helped them to better understand the app but also fostered a sense of community and shared responsibility for each other's learning.

This experience highlighted the practical benefits of integrating digital tools into the learning environment, as well as the necessity of providing initial guidance and support (Ruzek et al., 2016; Rimm-Kaufman & Sandilos, 2011). The students' engagement and adaptability underscored the value of creating opportunities for them to collaborate and develop digital literacy skills. This observation reinforces the importance of incorporating peer-assisted learning strategies in educational settings to enhance students' critical thinking and problem-solving abilities.

> "During the study session, students were seen discussing their experiences with the EnglishScore App. Peer recommendations and demonstrations were common, with students showing each other how to use certain features." (Observation Notes 1)

In classroom settings, peer support played a crucial role in the initial adoption phase:
> "Students who used the EnglishScore app were frequently observed helping their peers set up and navigate the EnglishScore interface. This peer support seemed to play a crucial role in the initial adoption among students." (Observation Notes 2)

These observations highlight the role of peer facilitation and collaborative learning environments in promoting the use of AI chatbots. This aligns with the diffusion of innovations theory (Grgurović, 2013; Rogers, 2003; Sahin & Thompson, 2006), which posits that interpersonal networks are vital in the spread of new technologies. Understanding the diffusion process can help in designing better strategies for promoting and implementing innovations effectively.

The convergence of findings highlights the significant influence of social norms and peer interactions on the adoption and use of AI chatbots among students. Peer influence emerges as a powerful factor, with students feeling compelled to use the chatbot due to its popularity and the positive endorsements from their peers. This study's results are consistent with existing literature that underscores the role of social factors in technology adoption. The desire to conform to group behaviors, seek social validation, and benefit from communal learning experiences are key drivers behind the engagement with new technologies like AI chatbots (Goh & Sigala, 2020). These findings suggest that educational institutions aiming to promote the use of AI chatbots should consider strategies that leverage peer influence and foster collaborative learning environments.

Perceived control over using AI chatbots

The data reveal varying levels of perceived control over using AI chatbots among participants. Technological proficiency and time management are identified as key factors influencing participants' perceived ease or difficulty in using the technology. These findings align with previous research highlighting the importance of user-friendliness and accessibility in facilitating technology acceptance and adoption (Davis, 1989; Liu et al., 2024).

Participants' comments during the interviews illustrate the impact of technological proficiency on their perceived control. For example, Interviewee C, who identified as technologically proficient, expressed confidence in using the chatbot:
> "I've always been good with tech, so using the chatbot was pretty straightforward for me. I didn't face any major issues, and it was easy to integrate it into my routine."

In contrast, Interviewee D, who reported lower technological proficiency, described encountering difficulties:
> "I'm not very tech-savvy, so I struggled a bit with getting the chatbot to work properly. It took me a while to figure out how to use it effectively."

These differing experiences underscore the importance of technological proficiency in shaping users' perceived control and ease of use. This supports the technology acceptance model, which posits that perceived ease of use significantly impacts users' acceptance of new technologies (Al-Rahmi et al., 2019; Davis, 1989).

Group discussions highlighted the role of time management in participants' experiences with the AI chatbot. Participants who managed their time well found the chatbot to be a useful tool, while those with poor time management skills faced challenges. For example:
> "I usually plan my study sessions in advance, so using the chatbot fit nicely into my schedule. It actually helped me save time on research and get quick answers." (Participant 3, Group Discussion 2)

On the other hand:
> "I have a hard time managing my time, and trying to learn how to use the chatbot just felt like another thing on my plate. It was more stressful than helpful at times." (Participant 4, Group Discussion 2)

These discussions highlight that effective time management can enhance the perceived utility of the chatbot, while poor time management can exacerbate difficulties, supporting findings from previous research on the role of self-regulation in technology use (Chou et al., 2023).

Observations provided further evidence of the impact of technological proficiency and time management on perceived control. Technologically proficient students were often seen navigating the chatbot effortlessly and helping peers who encountered technical issues:

> "Technologically proficient students were frequently observed assisting their peers with technical issues related to the chatbot. They appeared more confident and efficient in using the technology." (Observation Notes 3)

Conversely, students struggling with time management were observed expressing frustration and abandoning the chatbot after initial attempts:

> "Students with poor time management skills were often seen getting frustrated with the chatbot and abandoning its use after initial attempts. They cited lack of time as a major barrier." (Observation Notes 4)

These observations reinforce the notion that technological proficiency and effective time management are crucial for fostering a sense of control and ease in using AI chatbots. This aligns with the unified theory of acceptance and use of technology, which emphasizes the importance of facilitating conditions and self-efficacy in technology adoption (Gan & Balakrishnan, 2017; Waheed et al., 2015).

The findings from interviews, group discussions, and observations collectively indicate that perceived control over using AI chatbots varies significantly among participants. Technological proficiency and time management emerge as pivotal factors influencing this perceived control. Participants who are more technologically savvy exhibit greater confidence and ease in using the chatbot, whereas those with lower proficiency and poor time management skills encounter significant challenges. These findings corroborate existing literature on technology acceptance, highlighting the critical role of user-friendliness and accessibility in technology adoption. The data suggest that educational institutions aiming to promote AI chatbot usage should consider implementing training programs to enhance technological proficiency and provide resources to support effective time management among students.

Students' perceptions and actual engagement

The findings suggest a complex interplay between students' perceptions and their actual engagement with AI chatbots. Positive attitudes and perceptions of utility often lead to consistent engagement, while concerns about reliability and technical issues can hinder usage. Additionally, social norms and peer dynamics play a significant role in shaping students' engagement patterns, highlighting the need for a holistic understanding of the factors driving technology usage behaviors.

The interviews reveal how students' perceptions of utility and reliability influence their engagement with AI chatbots. For instance, Ara expressed a positive attitude towards the chatbot, which translated into regular usage:

> "I find the chatbot really useful for quick answers and study tips. It's like having a tutor available every time everywhere. Because of this, I use it almost every day."

In contrast, Ais highlighted concerns about reliability, which affected their engagement:

> "Sometimes the chatbot gives me answers that don't make sense or are too vague. This makes me hesitant to rely on it, so I only use it occasionally."

These responses indicate that while positive perceptions of utility can enhance engagement, concerns about reliability can deter consistent usage. This supports the technology acceptance model, which emphasizes the impact of perceived usefulness and perceived ease of use on technology adoption (Davis, 1989).

Group discussions shed light on how social norms and peer dynamics influence students' engagement with AI chatbots. For example, Putri described how peer recommendations enhanced their engagement:

> "Everyone in my study group uses the chatbot and we often share tips on how to get the best answers from it. This has made me more inclined to use it regularly."

Conversely, Lian noted that negative peer feedback affected their usage:
> "A few of my friends had bad experiences with the chatbot, like getting incorrect answers. Liatening about their issues made me wary of using it too much."

These discussions highlight the significant role of social influence in shaping technology usage behaviors. Positive peer dynamics can promote engagement, while negative experiences shared among peers can discourage use. This aligns with the social influence theory, which posits that individuals' behaviors are influenced by the expectations and behaviors of their social group (Fabiyi, 2024; Kelman, 1958; Ruan et al., 2018).

Observational data provide further insights into the factors affecting engagement with AI chatbots. For instance, students with positive perceptions of the chatbot's utility were observed using it frequently and integrating it seamlessly into their study routines:
> "Students who viewed the chatbot as a valuable study aid were frequently seen using it during study sessions, asking questions, and exploring its features." (Observation Notes 5)

On the other hand, students who encountered technical issues or questioned the chatbot's reliability were observed engaging less consistently:
> "Several students expressed frustration when the chatbot provided unclear or incorrect answers, leading them to reduce their usage over time." (Observation Notes 6)

Additionally, the influence of peer interactions was evident:
> "In group settings, students who received positive feedback from peers about the chatbot were more likely to use it actively. Conversely, negative feedback from peers resulted in visibly reduced engagement." (Observation Notes 7)

These observations underscore the importance of perceived utility, reliability, and social dynamics in determining students' engagement with AI chatbots.

The findings highlight a multifaceted relationship between students' perceptions and their engagement with AI chatbots. Positive attitudes and perceived utility often result in regular usage, while concerns about reliability and technical issues can impede consistent engagement. Social norms and peer dynamics further complicate this relationship, underscoring the need for a comprehensive understanding of the factors influencing technology usage behaviors. These results are consistent with the technology acceptance model and social influence theory, which emphasize the roles of perceived usefulness, perceived ease of use, and social factors in technology adoption. Educational institutions aiming to enhance AI chatbot engagement should address reliability concerns, enhance user training, and leverage positive peer dynamics to foster a supportive environment for technology use.

The findings of this study contribute to the existing literature on technology-enhanced language learning and the adoption of AI-driven educational tools. They corroborate previous research highlighting the importance of user attitudes, social influences, and perceived control in shaping students' engagement with technology in educational contexts. Moreover, the study provides nuanced insights into the unique affordances and challenges of AI chatbots in language learning, adding to our understanding of their potential impact on student learning outcomes.

CONCLUSION

This qualitative study examined student engagement with an AI chatbot designed for English language learning through the lens of Planned Behavior Theory (PBT). By employing a phenomenological approach, the research explored the lived experiences and perceptions of 15 participants from a private higher education institution in Aceh, Indonesia. Through three different instruments (semi-structured interviews, focus group discussions, and observation) attitudes, social influences, perceived behavioral control, and the alignment of perceptions with engagement were

examined. Thematic analysis of the data revealed a diverse spectrum of attitudes towards AI chatbots, shaped by perceptions of utility, social norms, and technological proficiency. The triangulation of findings from interviews and focus groups highlighted converging themes and provided a comprehensive understanding of how students engage with AI chatbots in English language learning contexts. Participants navigated a complex interplay between their individual beliefs and external factors when interacting with AI-driven educational tools.

This study emphasizes the significance of considering sociocultural contexts and user experience in the design and implementation of AI chatbots for educational purposes. It underscores the need for tailored strategies that address both the technical capabilities of AI chatbots and the socio-behavioral dynamics influencing student engagement. By integrating insights from Planned Behavior Theory, educators and developers enhance the effectiveness of AI-driven tools in promoting student engagement and learning outcomes in language education. The insights gleaned from this research contribute to the broader discourse on technology-mediated language learning and provide valuable guidance for future research and educational practices aimed at optimizing student engagement with AI chatbots in English language education settings.

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APPENDICES

SEMI-STRUCTURED INTERVIEWS

Attitudes towards AI Chatbots (ChatGPT, Google Translate, Quillbot, English Score, Duolingo, ELSA Speak, TalkPal, Perplexity, etc)

1. How would you describe your overall attitude towards using AI chatbots for English language learning?
2. Can you tell me about any specific experiences you've had using AI chatbots for language practice? What aspects do you find most beneficial?
3. Are there any concerns or reservations you have about using AI chatbots for language learning?

Social Influences (Subjective Norms)

4. Have you ever discussed or shared your experiences with AI chatbots with your peers or classmates? If so, how did these interactions influence your engagement with the chatbots?
5. Do you feel that your instructors or teachers have encouraged or discouraged the use of AI chatbots in your language learning activities? How has their feedback influenced your behavior?

Perceived Behavioral Control

6. How confident do you feel in your ability to use AI chatbots effectively for language learning tasks?
7. What factors, if any, do you think might affect your ability to use AI chatbots consistently for language practice?

Alignment of Perceptions with Engagement

8. How do your perceptions of AI chatbots align with your actual usage and engagement with them? Are there any discrepancies between your beliefs and behaviors?
9. Can you describe a typical interaction or session with an AI chatbot for language learning? How frequently do you use them, and for what purposes?

Focus Group Discussion Questions
Attitudes Towards AI Chatbots

1. **Overall Attitudes**
   As a group, how would you collectively describe your attitudes towards using various AI chatbots (e.g., ChatGPT, Google Translate, Quillbot, Duolingo, ELSA Speak, etc.) for English language learning? Are there differences in how each of you feel about these tools?
2. **Specific Experiences**
   What specific experiences have you had using AI chatbots for language practice? As a group, what do you find most beneficial about these tools? Are there any particular chatbots that stand out in terms of usefulness?
3. **Concerns and Reservations**
   Do any of you have concerns or reservations about using AI chatbots for language learning? How do these concerns compare across the group, and do they impact your willingness to use these tools?

Social Influences (Subjective Norms)

4. **Peer Influence**
   Have any of you discussed or shared your experiences with AI chatbots with your peers or classmates? How do you think these interactions have influenced your engagement with the chatbots? Do you notice any trends in how peer opinions shape chatbot usage?
5. **Instructor Influence**
   How do you feel about your instructors' attitudes towards AI chatbot use in language

learning? Do you feel encouraged or discouraged by their feedback? How has this influenced your group's behavior or attitudes towards these tools?

Perceived Behavioral Control

6. **Confidence in Use**

    How confident does the group feel in using AI chatbots for language learning tasks? Are there any shared challenges that affect your confidence levels, or do you feel differently as individuals?

7. **Factors Affecting Usage**

    What factors do you think might affect your group's ability to use AI chatbots consistently for language practice? Are these factors similar for all of you, or do some of you face different challenges?

Alignment of Perceptions with Engagement

8. **Perceptions vs. Reality**

    How do your perceptions of AI chatbots align with your actual usage and engagement with them? As a group, have you noticed any discrepancies between what you believe about these tools and how often or effectively you use them?

9. **Typical Interaction**

    Can you describe a typical interaction or session with an AI chatbot for language learning? How often do you use them, and for what specific purposes? Are there any patterns or similarities in how each of you engage with these tools?

Table 1.
Thematic Analysis of Interview and Focus Group Discussion (FGD) Data

INITIAL CODES	CODES	THEMES	INTERPRETATION
Excerpt from Interview and FGD			
Attitude toward Chatbot			
(To explore students' attitudes towards the use of AI chatbots in education)			
Interview Data - "I find AI chatbots really helpful because I can use it every time and every where."(**Positive Attitude**) "I find the chatbot really helpful because it gives me instant feedback on my pronunciation. I can practice speaking without feeling embarrassed in front of the class - "I don't trust AI chatbots because they sometimes give incorrect information. I need to check and recheck it myself" (**Negative Attitude**)	- "available 24/7," "easy to access anytime" - "incorrect information," "trust issues"	- Accessibility and Availability - Trust and Reliability	- Students appreciate the constant availability of chatbots. - Concerns about the accuracy and reliability of chatbot responses.
Subjective Norms Regarding AI Chatbots			
(Focus group discussions with students about peer and teacher influences on their use of AI chatbots)			
FGD Data - "My friends use AI chatbots, so I started using them too." (**Peer Influence**) - "Our teacher suggested we use the chatbot for homework help." (**Teacher Recommendation**)	- Peer Influence - Teacher Recommendation	- Peer Influence	- The role of peers in encouraging the use of chatbots. - The impact of teachers and school authorities on chatbot usage.
Perceived Behavioral Control Over AI Chatbots			
(To explore students' perceived behavioral control when using AI chatbots)			
Interview Data - "It's really easy to interact with the chatbot." (**Ease of Use**)	- "easy to interact,"	- Ease of Use	- Students find the chatbots user-friendly and easy

- "Sometimes it's hard to get the chatbot to understand what I mean." (**Technical Difficulties**)	- "user friendly interface" - "hard to understand," - "technical difficulties"	- Technical Challenges	to use. - Some students face difficulties due to technical limitations of chatbots.
Impact of AI Chatbots on Learning Outcomes			
Interview Data - "The chatbot helped me understand difficult concepts better." (Enhanced Understanding) - "The chatbot couldn't help me with advanced problems." (Limited Help)	- "understand difficult concepts," "clarifies doubts" - "couldn't help with advanced problems," "limited knowledge"	- Improved Comprehension - Limitations in Advanced Topics	- AI chatbots aid in clarifying and understanding basic and intermediate concepts. - Chatbots often struggle with providing assistance on more complex subjects.
Emotional Responses to AI Chatbots (To investigate students' emotional responses to using AI chatbots)			
Interview Data - "I got really frustrated when the chatbot didn't understand my question." (Frustration) - "I felt satisfied when the chatbot provided a correct answer quickly." (Satisfaction)	- "satisfied," "happy," "relieved" - "frustrated," "annoyed," "disappointed"	- Positive Emotional Responses - Negative Emotional Responses	- Feelings of satisfaction and relief when the chatbot performs well. - Feelings of frustration and disappointment when the chatbot fails to meet expectations.
User Experience and Interface Design of AI Chatbots (To explore students' experiences with the interface design of AI chatbots)			
FGD Data - "The chatbot interface is really easy to navigate." (User-Friendly Design) - "The layout is confusing, and I can't find the help section." (Design Issues)	- "easy to navigate," "intuitive design" - "confusing layout," "difficult to find help"	- Usability - Design hallenges	- Positive aspects of the chatbot interface that facilitate user interaction. - Issues in the interface design that hinder effective use.
Privacy Concerns with AI Chatbots			
Interview Data - "I'm worried about how my data is stored and used." (Data Security) - "I don't feel comfortable sharing personal information with the chatbot." (Anonymity)	- "worried about data storage," "data usage concerns" - "uncomfortable sharing personal info," "trust issues"	- Data Security Concerns - Anonymity and Trust	- Worries about how data is stored and used by the chatbot providers. - Discomfort with sharing personal information and trusting the

			chatbot.
Integrating AI Chatbots in the Classroom			
Observation Data - "Students seem more engaged when using the chatbot." (Enhanced Engagement) - "The student showed high engagement with the AI responses, reading them thoroughly and responding with thoughtful follow-up questions. They appeared interested in understanding the content." (Enhanced Engagement) - "Sometimes the chatbot distracts students from the main lesson." (Distraction)	-"more engaged," "interactive learning" - "high engagement" -"distracts students," "off-task behavior"	- Increased Engagement - Potential Distractions	- Positive impact on student participation and interest in lessons. - Challenges in maintaining focus during chatbot activities.

Table 2

Observation rubric

Criteria	Indicators	Rating Scales	Comments/ Notes
Behavior			
1. Interaction Frequency	How often does the student engage with the AI chatbot during the session?	**1**: Rarely (1-2 times) **2**: Occasionally (3-5 times) **3**: Frequently (6+ times)	The student interacted with the AI chatbot 4 times during the session. They seemed to pause between interactions, possibly reflecting on responses before engaging again.
2. Task Focus	Does the student stay on task while interacting with the AI chatbot?	**1**: Frequently off-task **2**: Occasionally distracted **3**: Consistently on-task	The student remained focused on the task throughout the session, consistently directing questions and prompts related to the assigned topic without getting distracted by unrelated tasks.
3. Problem-Solving	How does the student utilize the AI chatbot to solve problems?	**1**: Struggles to use the chatbot **2**: Somewhat effective **3**: Highly effective	The student was somewhat effective in solving problems with the AI chatbot. They attempted to ask clarifying questions when the AI response was unclear, though they struggled with complex problems.
Engagement Level			
4. Engagement with AI Responses	How engaged is the student with the responses provided by the AI chatbot?	**1**: Low engagement **2**: Moderate engagement **3**: High engagement	The student showed high engagement with the AI responses, reading them thoroughly and responding with thoughtful follow-up questions. They appeared interested in understanding the content.
5. Active Inquiry	Does the student ask follow-up questions or seek additional information from the AI chatbot?	**1**: Seldom asks questions **2**: Sometimes asks questions **3**: Frequently asks questions	The student asked follow-up questions occasionally but did not consistently probe deeper into the responses. They relied on the initial answer unless it was significantly unclear
Usage Patterns			
6. Exploration of AI Capabilities	To what extent does the student explore the different functionalities of the AI chatbot (e.g., asking varied questions, using different features)?	**1**: Minimal exploration **2**: Moderate exploration **3**: Extensive exploration	The student showed minimal exploration of the AI chatbot's capabilities, primarily using it for basic Q&A without experimenting with advanced features or diverse question types.

7. Adaptation to AI Limitations	How does the student adapt when the AI chatbot fails to provide a satisfactory response?	**1**: Easily frustrated **2**: Some adaptation **3**: Effectively adapts	When the AI chatbot provided unsatisfactory responses, the student showed some adaptability by rephrasing questions but occasionally seemed frustrated when answers remained unclear.
8. Creativity in Use	How creatively does the student use the AI chatbot to approach tasks or problems?	**1**: Minimal creativity **2**: Some creativity **3**: High creativity	The student demonstrated moderate creativity in their use of the AI chatbot. They occasionally asked questions in a different way but mostly stuck to a straightforward approach.
Notable Patterns			
9. Pattern Recognition	Are there any recurring patterns in the student's interaction with the AI chatbot (e.g., similar types of questions, consistent errors)?	**1**: No noticeable patterns **2**: Some patterns **3**: Clear patterns	A clear pattern emerged in the student's interaction: they often asked for definitions and explanations but did not attempt to apply the information in more complex ways during the session.
10. Reflective Comments	Any specific observations or notable behaviors that stand out during the session?		The student appeared engaged and interested, but their interaction remained mostly surface-level. A noticeable pattern was the tendency to seek confirmation of known information rather than exploring new topics. They might benefit from guidance on how to push the limits of the AI chatbot's capabilities to foster deeper learning. Additionally, the student's frustration with unclear AI responses indicates a potential area for improving their problem-solving strategies. Overall, the session highlighted the student's strengths in staying focused and engaging with content, but also revealed opportunities for growth in exploring the full potential of the technology.