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Social Interaction between Lecturers and Undergraduates in EFL Classrooms: A Case Study from a Thai University in the Age of AI

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Abstract. This explanatory sequential mixed-methods study investigates how artificial intelligence (AI) is reshaping social interactions in Thai EFL classrooms amid the rapid spread of chatbots and AI-supported writing tools in language education (2020–2025). Grounded in Sociocultural Theory and the Interaction Hypothesis, the design combined a questionnaire administered across four undergraduate year levels with semi-structured interviews of eight purposively selected students. Descriptive statistics summarized the survey responses, while the interview data was analysed thematically. The findings show that students welcome AI for quick access to input, idea generation, and building confidence before speaking yet remain cautious about accuracy and overreliance, and many still prefer lecturer clarification for complex issues. A new contribution emerges in the form of a dual effect: pre-class AI preparation enables students to enter lessons better prepared and more confident, but it is also associated with fewer spontaneous in-class clarification questions, suggesting a subtle displacement of routine lecturer–student interaction. While AI can stimulate participation and reduce hesitation, it cannot replace teacher guidance, formative feedback, and relational rapport. Overall, the evidence supports a hybrid interaction model in which AI-supported preparation is paired with human-led dialogue during class. Implications extend beyond ZPD and the negotiation of meaning toward a whole-class ecology: brief, transparent rules for responsible AI use (verification and disclosure),

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protection of talk time through AI-off/AI-critique moments, and process-oriented assessment that includes light evidence of AI use and short reflections on revisions. Program-level alignment (equity safeguards, approved tools, and privacy/ethics policies) is recommended to keep expectations consistent. By documenting both the benefits and displacement risks of pre-class AI use, this study refines the sociocultural theory for the AI era. It offers scalable guidance for EFL programs in Thailand and across Asia.

Keywords: AI in EFL; lecturer–student interaction; social interaction; hybrid interaction model

1. Introduction

Social interaction is a crucial part of the learning process in the classroom, especially in English language education. According to Vygotsky's (1978) sociocultural theory, learning takes place most effectively through social interaction, and collaboration contributes directly to knowledge building. With support and guidance from teachers, students work together to use language, which helps them understand more deeply and connect with different cultures.

In English as a Foreign Language (EFL) context, particularly in countries such as Thailand where English is taught as a foreign language, the quality of the interaction between lecturers and undergraduates significantly influences student engagement and their language development (Karim et al., 2024; Long, 1996; Vygotsky, 1978). In recent years, artificial intelligence (AI) has rapidly developed and begun to strongly influence education, particularly in the ways languages are taught and learned. Tools such as intelligent writing assistants, chatbots, and automated feedback platforms are increasingly being integrated into EFL classrooms. These technologies are often presented as offering personalized support and increased practice opportunities (Hsu & Ching, 2023).

For instance, Fathi et al. (2024) reported that AI-mediated speaking tasks improved learners' speaking skills and willingness to communicate. Similarly, Huang and Zou (2024) found that AI-supported speaking led to greater enjoyment and a higher willingness to communicate. In addition, Hu and Wang (2023) showed that teacher immediacy strongly predicts the students' willingness to communicate and academic engagement, underscoring the continuing role of human interaction alongside AI use. At the same time, the student perceptions of AI remain mixed. Chan and Hu (2023) found that while many learners appreciate AI for its usefulness in brainstorming, writing, and language practice, they still express concerns about reliability, ethics, and accuracy.

Likewise, Chan and Tsi (2023) emphasized that students see AI as a valuable support tool but continue to regard human teachers as essential for creativity, critical thinking, and emotional connection. Adding a critical perspective, Al-Zahrani (2024) cautioned that increased reliance on AI could bring risks such as reduced human interaction, bias, and the weakening of students' critical thinking skills. On the other hand, Hsiao (2024) reported that AI tools used in reading and

writing activities can encourage independence and self-regulation, suggest potential benefits when integrate responsibly.

In the Thai context, Thadphoothon and Samrit (2025) noted that business English students frequently used AI tools, primarily to expand their vocabulary. Some students observed improvements in pronunciation and word use, although concerns about accuracy remained. Furthermore, Krasaesom et al. (2023) found that undergraduates at a Rajabhat University expressed positive views toward AI platforms and felt that these tools supported their English learning.

Other studies have also indicated that AI—especially generative AI—is becoming a regular feature of EFL classrooms, both in Thailand and internationally (Boonchom et al., 2024; Kohnke et al., 2023). These findings highlight the importance of exploring how AI technologies shape not only language competence but also the social dynamics of Thai EFL classrooms. While many studies have examined either AI in education or social interaction in EFL contexts, few have addressed their intersection, particularly in Thai university settings.

This gap underscores the need for an in-depth investigation into how the lecturer-AI point is shaping student interactions. The present study aims to examine the nature of the social interaction between lecturers and undergraduates in Thai EFL classrooms in the age of AI. Using a mixed-methods approach, it investigates how interaction patterns are experienced, perceived, and influenced by AI integration. The findings are expected to contribute to understanding how to maintain effective teacher–student interactions and communication strategies in an increasingly digital learning environment.

1.1 Research Objectives

RO1: To examine the relationship between the use of AI technologies and the level of social interaction between lecturers and undergraduates in EFL classrooms.
RO2: To explore the undergraduates' perceptions of how AI technologies influence their interaction with lecturers in EFL classrooms.
RO3: To investigate the students' experiences regarding changes in lecturer–student communication resulting from the use of AI technologies.

1.2 Research Questions

RQ1: Is there a relationship between the use of AI technologies and the level of social interaction between lecturers and undergraduates in EFL classrooms?
RQ2: How do undergraduates perceive the influence of AI technologies on their interaction with lecturers in EFL classrooms?
RQ3: What experiences do students report regarding the changes in lecturer–student communication as a result of using AI technologies?

2. Literature Review

2.1 Social Interaction in EFL Classrooms

Vygotsky's sociocultural theory (SCT) views learning as a social process highly relevant to English as a Foreign Language (EFL) instruction. Knowledge is first built through interaction and later internalized (Vygotsky, 1978). Learners advance when teachers or peers provide scaffolding—support that enables

performance just beyond independent ability within the Zone of Proximal Development (ZPD). For example, an English lecturer might rephrase a question or give a clue to help a student grasp a difficult concept. Over time, these guided interactions become part of the learner's independent skills. Research shows that such guidance accelerates development; feedback practices that prompt self-correction or adjust the support according to learner needs yield greater gains than simply supplying the correct answers (Lantolf, 2000). Well-timed support targets the "sweet spot" of challenge and drives progress through the ZPD.

Long's Interaction Hypothesis complements SCT by highlighting the value of conversational exchange in second-language acquisition. Meaningful communication—especially when misunderstandings arise—pushes learners to clarify, repeat, or rephrase, a process known as negotiation of meaning (Long, 1996). These repairs resolve confusion and draw attention to key language features, helping learners notice gaps between their own output and proficient usage. Interaction provides more than comprehensible input; it fosters awareness and self-repair, a process also supported by Schmidt (1990).

Real-time feedback helps learners recognize errors and refine grammar, vocabulary, and sentence structure. Recent studies confirm that classroom communication—questioning, peer exchange, and corrective feedback—enhances grammar and vocabulary development (Wiboolyasarin et al., 2022). Together, SCT and the interaction hypothesis show that language grows through meaningful interaction and responsive feedback.

Thai EFL classrooms have traditionally been lecturer-centered, leaving students passive, but recent approaches stress participation through questioning, feedback, and informal discussion to build confidence. Farrelly and Sinwongsuwat (2021) found that Thai teachers use both display questions (checking comprehension) and referential questions (eliciting opinions) along with scaffolding to support answers. Nevertheless, many students remain quiet because of anxiety or misunderstanding. Effective questioning requires not only strong content but also a relaxed atmosphere and good rapport. Songkhro (2021) reported that students preferred friendly, low-pressure questions and feared misunderstanding or giving wrong answers. Teachers responded by allowing extra wait time, using simpler language, and accepting answers in Thai or English—strategies that encourage participation.

Feedback style also shapes interaction. Wiboolyasarin et al. (2022) found that Thai EFL learners valued precise, grammar-focused corrections. Beginners favored softer or private feedback to avoid embarrassment, whereas advanced learners preferred direct and immediate correction. Such scaffolded feedback aligns with ZPD principles by providing just enough assistance at the right moment (Abdel Latif et al., 2024). Finally, rapport—a trusting teacher–student relationship—fosters motivation and engagement. Patience, humor, and genuine care help students feel safe to participate, a crucial factor in Thai classrooms where many are shy (Frisby & Martin, 2010; Kearney et al., 2023; Songkhro, 2021). Strong rapport reduces anxiety, improves attendance, and supports sustained

participation (Karel et al., 2025). In sum, social interaction in EFL classrooms involves more than language exchange. Effective questioning, scaffolded feedback, and warm rapport create a supportive environment where students feel confident to engage, notice language gaps, and progress through their ZPD—demonstrating how skilled, caring educators make interactions the engine of language development.

2.2 Integration of AI in EFL Learning

From 2020 to 2025, artificial intelligence (AI) tools—chatbots, AI tutoring systems, and writing assistants—have expanded rapidly in EFL education. Educators are now asking how these tools shape classroom interaction and learning: do they create new practice opportunities or displace human communication? The following global and Thai studies review AI's role to clarify these impacts.

Chatbots are widely used as out-of-class conversation partners, simulating dialogue in a low-pressure space where learners can practice speaking at their own pace and repeat tasks as needed; frequent use improves fluency and pronunciation, with gains in natural intonation and stress (Aliakbari et al., 2025). They also foster learner ownership and self-regulation through independent practice and progress tracking (Tetteh et al., 2025), often via real-life role-plays (e.g., travel agent, classmate) that create authentic opportunities to request help or make inquiries.

Conversations can feel natural and extend beyond the classroom into daily life (Cordova, & Pantao, 2025). A creative application—Socratic questioning by a chatbot—boosted group discussion, critical thinking, balanced participation, and satisfaction (Saksono et al., 2025). Because chatbots are accessible anytime on phones or laptops, they expand practice opportunities that teachers may not be able to provide, with lower-proficiency learners often gaining the most confidence before speaking with real people (Ampo et al., 2025).

AI-powered intelligent tutoring systems (ITSs), like Grammarly and ETS's E-rater, have become increasingly common in EFL writing instruction. These tools provide instant feedback on grammar, structure, and clarity, helping students revise their work more independently and develop writing autonomy. Jiang (2022) noted that such systems are among the most widely used AI applications in language education. However, they work best when paired with teacher feedback rather than used independently.

Duong and Chen (2025) found that a Writing Assistant Bot (WAB) supported Vietnamese high school students' writing, with beginners using it mainly for planning (brainstorming, vocabulary) and advanced learners using it during drafting (sentence variety, style). Both groups improved in organization, vocabulary, and grammar. They rated the tool as practical and easy to use, suggesting that AI writing support can scaffold the process in line with sociocultural principles. In addition, Hsu and Ching (2023) highlighted that generative AI tools can personalize learning, encourage creativity, and support teachers by reducing workload. At the same time, Chan and Hu (2023) found that

students value AI for tasks like brainstorming and writing but remain cautious about issues of reliability and ethics. Hsiao (2024) further showed that AI-powered tools in reading and writing help learners become more autonomous and self-regulated, a finding especially relevant for EFL contexts. Balancing these positive reports, Al-Zahrani (2024) warned that an over-reliance on AI may undermine human connection, introduce bias, and reduce opportunities for critical thinking. These mixed findings suggest that AI tools are most effective when used alongside, rather than in place of, teacher-led instruction.

2.3 AI and Social Interaction in the Thai EFL Context

Between 2020 and 2025, the use of artificial intelligence (AI) in language learning has expanded rapidly. Chatbots, AI-based tutoring systems, and writing assistants are now common in EFL classrooms, raising questions about how these tools influence interaction and learning. Do they create new practice opportunities, or do they replace human communication? Global and Thai-based studies provide insight into AI's evolving role.

One prominent application is the use of chatbots as conversation partners outside class. Regular practice with chatbots improves speaking fluency and pronunciation (Grab, 2025). Korean EFL learners who used an English chatbot developed more natural intonation and stress (Kim et al., 2021). Because chatbots allow self-paced, repeated practice, students can control their learning and track their progress, promoting self-regulation (Kilickaya, & Kic-Drgas, 2024). Many systems also include role-play scenarios—such as acting as a travel agent or classmate—that reflect real-life contexts and help students apply practical language.

Klímová and Ibna Seraj (2023) observed that these conversations often feel natural and can occur anytime, extending learning beyond the classroom. Interestingly, lower-proficiency learners seemed to benefit most, reporting greater confidence before interacting with real people. A creative study by Belda-Medina and Calvo-Ferrer (2022) used a chatbot designed to ask thoughtful, guiding questions in the style of the Socratic method, which encouraged critical thinking, balanced participation, and higher satisfaction.

Another major strand of research examines AI-powered tutoring and writing support. Intelligent tutoring systems such as Grammarly and ETS's E-rater provide instant feedback on grammar, structure, and clarity. Jiang (2022) noted that these systems are among the most widely used AI applications in language education and are most effective when paired with teacher feedback. Duong and Chen (2025) found that a Writing Assistant Bot (WAB) helped Vietnamese high school students improve their organization, vocabulary, and grammar. Beginners used WAB mainly for planning—brainstorming ideas and vocabulary—while more advanced learners relied on it during drafting to enhance sentence variety and style. Students across the levels described the tool as practical and easy to use.

Hsu and Ching (2023) further reported that generative AI can personalize learning, encourage creativity, and reduce teacher workload. Students value AI

for brainstorming and drafting (Chan & Hu, 2023) and often become more autonomous and self-regulated (Hsiao, 2024). Yet caution remains: Chan and Hu (2023) highlighted concerns over reliability and ethics, and Al-Zahrani (2024) warned that excessive dependence on AI may weaken the human connection, introduce bias, and reduce opportunities for critical thinking.

Overall, these studies show that AI tools can enhance fluency, autonomy, and confidence when used as complements to teacher guidance. Chatbots provide flexible conversational practice, and writing assistants offer scaffolded feedback that aligns with sociocultural learning principles. At the same time, persistent concerns about accuracy, ethics, and over-reliance emphasize the importance of integrating AI with, rather than replacing, lecturer interactions.

3. Methodology

3.1 Research Design

This explanatory sequential mixed-methods study investigated how artificial intelligence (AI) reshaped social interaction in Thai EFL classrooms amid the rapid spread of chatbots and AI-supported writing tools in language education (2020–2025). Grounded in sociocultural theory and the interaction hypothesis, the design first employed a questionnaire administered across four undergraduate year levels, followed by semi-structured interviews with eight purposively selected students to explain and enrich the quantitative findings.

The explanatory sequential design was chosen because it allowed the quantitative findings to guide and inform the subsequent qualitative phase. By first identifying patterns and relationships through the questionnaire, the study was able to select participants and focus interview questions strategically to explain how AI tools influenced the lecturer–student interaction. This approach strengthened the study's validity by providing both breadth from the quantitative data and depth from the qualitative insights, enabling a more comprehensive understanding of the impact of AI on social interaction in EFL classrooms.

Two primary research instruments were employed: a structured questionnaire and semi-structured interviews. The questionnaire was designed to examine the relationship between the students' use of AI tools and their perceived quality of the social interaction with their lecturers. To ensure that the instrument was grounded in established literature, items were adapted from several key sources: Long (1996) for lecturer–student interaction, Fathi et al. (2024) for the impact of AI on classroom interaction, and recent AI-in-education studies such as Chan and Hu (2023), Hsu and Ching (2023), and Hsiao (2024) for learner attitudes, engagement, and autonomy.

3.2 Participants

The participants included undergraduate students enrolled on the English for Communication major at a Thai university in southern Thailand, registered in the first semester of the 2025 academic year. The program enrolled 330 undergraduates across Years 1–4. The final sample size for the quantitative phase depended on the actual response rate. For the qualitative phase, eight students

were selected purposively, representing different academic years and levels of AI usage. Frequent users were identified as those who selected "Often" or "Always" for Likert-scale items, while infrequent users were those who selected "Rarely" or "Never." Those who declined consent or submitted incomplete questionnaires were excluded.

3.3 Research Instruments

A structured questionnaire and semi-structured interviews were employed as the primary research instruments in this study. The questionnaire was designed to examine the relationship between the students' use of AI tools and their perceived quality of the social interaction with their lecturers. To ensure that the instrument was theoretically grounded, the items were adapted from established literature, including Long (1996) for the lecturer–student interaction, Fathi et al. (2024) for the influence of AI on classroom interaction, and Chan and Hu (2023), Hsu and Ching (2023), and Hsiao (2024) for student engagement, learner autonomy, and perceptions of AI in EFL education.

The questionnaire comprised of closed-ended and Likert-scale items focusing on the frequency and types of AI usage, the quality of communication with lecturers, and the levels of classroom engagement. To establish content validity, the instrument was reviewed by three academic experts whose research areas aligned with the study's objectives and research questions. All indicators, including both positively and negatively worded items, were measured using a five-point Likert scale ranging from 5 = Strongly Agree to 1 = Strongly Disagree.

To enrich and triangulate the quantitative findings, semi-structured interviews were conducted with eight purposively selected students. The interviews provided deeper insights into their experiences, perceptions, and reflections on how AI tools influenced the lecturer–student interaction in EFL classrooms. Each interview lasted approximately 30–45 minutes and was audio-recorded and transcribed verbatim with the participants' informed consent.

3.4 Data Collection and Analysis

The study was carried out to collect both questionnaire and interview data during the first semester of the 2025 academic year at a Thai university. All four-year undergraduates, approximately 298 students currently enrolled in the English for Communication major, were included in the study as participants. The researcher made an appointment with each group of students by academic year and clarified the objectives and instructions in Thai to ensure they got accurate and reliable responses. The questionnaire was administered within 30 minutes, and the participants were not allowed to consult or discuss with each other during the process.

For the interviews, two participants from each academic year were selected and interviewed individually. Ethical approval (SCPHYLIRB-2568/535) was obtained from the university committee, and informed consent was secured from all participants. According to the data collection, the instruments were validated by applying the Index of Item Objective Congruence (IOC) to determine whether the content of the instruments correlated with the study's objectives. They were tested

and experimented with by three experienced researchers who had been teaching English at a university for over 10 years. Three of them were experienced researchers in TESOL and AI Technologies. Content validity was checked using the Index of Item–Objective Congruence (IOC) by the three TESOL/AI experts (≥10 years' experience). The IOC averages were 0.97 for the pre/post-tests and 0.82 for the questionnaire, exceeding the 0.50 threshold.

According to Research Objective 1, the quantitative data was analyzed using correlation statistics, including mean ($\bar{x}$), standard deviation (S.D.), and percentage (%). To interpret the mean scores based on the 5-point Likert scale, the following ranges were used (Bringula et al., 2012): 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Neutral; 1.81–2.60 = Low; and 1.00–1.80 = Very Low. The findings were used to reflect the students' perceptions of AI tool usage and the lecturer–student interaction in EFL classrooms.

Regarding Research Objectives 2 and 3, the interview data was transcribed and categorized to align with the research purpose. Then, the data was interpreted and analyzed using content analysis in order to answer Research Questions 2 and 3. To enhance the trustworthiness of the qualitative analysis, the first author coded all interview transcripts and iteratively refined the codebook. Although formal inter-coder reliability statistics were not calculated, a peer debriefing process was employed: the co-authors, who were not involved in the data collection, reviewed the codebook and a sample of coded excerpts, providing feedback on theme definitions. Discrepancies were discussed until consensus was reached, and an audit trail of coding decisions and reflexive memos was maintained throughout the analysis.

4. Research Findings

This section identifies the findings of the quantitative data from the questionnaires administered to undergraduate students enrolled in the English for Communication program at a university in southern Thailand. A total of 298 students completed the questionnaire (90.3% of the 330 enrolled). The findings are organized according to the three research objectives.

4.1 Quantitative Findings

Table 1 indicates the descriptive statistics of the students' responses regarding their use of AI tools in English language learning. The top three items with the highest mean scores are as follows: the highest was Item 4, "*I use AI tools to check grammar and writing quality.*" (mean = 3.88, S.D. = 0.97), indicating that most students primarily rely on AI to support their writing skills. This was followed by Item 2, "*AI tools help me practice English skills outside the classroom.*" (mean = 3.74, S.D. = 1.00), which focuses on the role of AI in facilitating autonomous learning beyond teaching in class. The third-highest score was Item 7, "*AI tools help me expand my English vocabulary.*" (mean = 3.72, S.D. = 1.05), reflecting the usefulness of AI in supporting vocabulary acquisition.

In contrast, the lowest mean score was recorded in Item 6, "*I use AI chatbots to practice speaking English.*" (mean = 3.25, S.D. = 1.07), indicating limited engagement

with AI for oral communication purposes. This result may suggest that students are either unfamiliar with or less confident when using AI chatbots for speaking practice. These findings highlight that while students actively utilize AI tools particularly for grammar, writing, and vocabulary development, the use of AI for enhancing speaking skills appears less common. This shows that students mostly use AI tools on their own for specific tasks, rather than for practicing real communication or interactive English skills. Overall, the total mean score for AI usage was 3.56 (S.D. = 1.03), indicating a high level of agreement with the use of AI tools among students in their English language learning.

Table 1: Results of AI tool usage in English language learning

No.	Lecturer–Student Social Interaction with AI Integration	Mean	S.D.
1	I regularly use AI tools to support my English learning.	3.65	0.90
2	AI tools help me practice English skills outside the classroom.	3.74	1.00
3	Using AI tools increases my confidence in English communication.	3.50	0.96
4	I use AI tools to check grammar and writing quality.	3.88	0.97
5	AI tools support my reading comprehension in English.	3.69	0.93
6	I use AI chatbots to practice speaking English.	3.25	1.07
7	AI tools help me expand my English vocabulary.	3.72	1.05
8	I feel more motivated to study English when using AI tools.	3.32	1.04
9	I rely on AI tools to improve my pronunciation.	3.30	1.14
10	I find AI tools effective for English learning.	3.56	0.98
Total		3.56	1.03

Table 2 presents the descriptive statistics of the students' perceptions regarding social interaction with lecturers in English classes involving AI integration. The highest mean score was observed in Item 8, "*I feel that AI tools help reduce anxiety when interacting with my lecturer in English.*" (mean = 3.59, S.D. = 1.04), which indicates that AI tools may foster a more comfortable learning environment. Next, Item 10, "*Combining AI tools and teacher support creates a more interactive and engaging English classroom.*" (mean = 3.56, S.D. = 0.98), highlights the perceived benefits of collaborative AI use in classroom engagement. The third-highest mean belonged to Item 3, "*I am more willing to ask questions or join class discussions when the lecturer encourages using AI tools to prepare answers.*" (mean = 3.53, S.D.).

These results suggest that the students most strongly agree that AI helps reduce anxiety and that combining AI with teacher support creates a more interactive class. On the other hand, Item 4, "*My lecturer uses examples from AI-generated responses (e.g., ChatGPT) to support our classroom interaction.*" (mean = 3.10, S.D. = 0.97) suggests that while students prefer using AI as an assistant for learning, they often do not experience teachers incorporating AI into English language teaching.

Overall, these findings suggest that students recognize the potential of AI to enhance their interactions and reduce anxiety, particularly when used alongside reflective tasks and supportive teaching. However, they may not yet see the

widespread or effective use of AI-generated examples in teacher-led instruction. The total mean score for the students' perceptions of social interaction was 3.38 (S.D. = 1.00), indicating an overall high level of perceived interaction in AI-supported English classrooms.

Table 2: Results for the lecturer–student social interaction with AI integration

No.	Lecturer–Student Social Interaction with AI Integration	Mean	S.D.
1	I feel more confident interacting with my lecturer in English when I practice using AI tools like ChatGPT or chatbots.	3.32	0.90
2	I continue interacting with my lecturer or classmates after using AI tools (e.g., ChatGPT, Grammarly, Quillbot, etc.) outside class.	3.19	1.00
3	I am more willing to ask questions or join class discussions when the lecturer encourages using AI tools to prepare answers.	3.53	0.96
4	My lecturer uses examples from AI-generated responses (e.g., ChatGPT) to support our classroom interaction.	3.10	0.97
5	When I use AI writing tools before submitting assignments, I feel more comfortable discussing feedback with my lecturer.	3.46	0.93
6	Practicing conversations with AI tools (e.g., chatbot simulations) helps me engage more with my classmates and the lecturer in speaking activities.	3.22	1.07
7	My lecturer creates opportunities for students to reflect on AI-generated ideas during the classroom interaction.	3.39	1.05
8	I feel that AI tools help reduce anxiety when interacting with my lecturer in English.	3.59	1.04
9	AI-based learning (like using ChatGPT) helps me take more responsibility when interacting with the lecturer and completing learning tasks.	3.44	1.14
10	Combining AI tools and teacher support creates a more interactive and engaging English classroom.	3.56	0.98
Total		3.38	1.00

Table 3 presents the correlation between the students' overall use of AI tools and their perceived social interactions with lecturers and peers in English language classrooms. AI tool usage and social interaction were moderately and negatively correlated, $r = -.443$, $p < .01$ (two-tailed). This suggests that students who report higher usage of AI tools tend to perceive lower levels of social interaction with lecturers, and vice versa. Although AI technologies offer significant support for autonomous learning, the findings imply that such tools may be used independently by students without necessarily promoting meaningful interaction with their lecturers.

This result aligns with the earlier insights gathered during the data collection phase, where students preferred using AI to complete assignments over engaging in reflective or collaborative dialogue with their lecturers. The findings support the notion that while AI enhances individual learning practices, it may also reduce

opportunities for lecturer–student engagement if not integrated with interactive teaching strategies.

Table 3: Correlation between AI tool usage and social interaction

Variable A	Variable B	Pearson's r	Interpretation
AI Tool Usage (Total Mean of 10 Items)	Social Interaction (Total Mean of 10 Items)	−0.443	Moderate Negative Correlation

Correlation is significant at the 0.01 level (2-tailed).

4.2 Qualitative Findings

Thematic analysis revealed three overarching areas of student experience: (1) shifts in lecturer–student and peer interactions, (2) the learners' cognitive stance toward AI within their study processes, and (3) preferred conditions for integrating AI in class. Across these areas, nine interrelated themes show how AI reshapes—but does not replace—the human channels of communication and supports language learning.

4.2.1 Shifts in Lecturer–Student and Peer Interaction

4.2.1.1 Decreased Interaction Due to Overuse of AI Tools

Six students reported less direct communication with lecturers because AI tools provided quick answers, reducing the perceived need to ask questions or seek clarification. Several interviewees described AI as a shortcut that made face-to-face interactions feel less necessary. As one student explained, *"I'd say my interaction with lecturers has decreased, but it's not like I've completely stopped asking or talking to them."* (S5). This pattern was widespread among those who frequently used AI outside of class.

4.2.1.2 Hybrid Use of AI and Lecturer Feedback

Two students described a balanced strategy, using AI to generate the initial ideas but still confirming or discussing information with their lecturers to ensure accuracy and a deeper understanding. One noted, *"I feel like there's less interaction, but not that much less. I still want feedback from the teacher, too… I often use ChatGPT if I don't know the answer. But then I'll go ask the teacher again."* (S2). This approach allowed them to benefit from both quick AI support and personalized teacher feedback.

4.2.1.3 Peer Consultation over Lecturer Support

One student mentioned preferring to ask their friends for help instead of lecturers, reflecting a shift toward peer support that may be reinforced by routine AI use and independent problem-solving outside class.

4.2.2 *Cognitive Stance and Learning Process with AI*

4.2.2.1 AI as a Shortcut: Less Thinking, More Misunderstanding

Five students admitted that their heavy reliance on AI sometimes led them to think less deeply about their work. While they valued AI's speed, they often skipped verifying the information, which occasionally caused misunderstandings or mistakes during class. One student reflected, *"I just take the answer from AI and use it. Sometimes I don't know if it's really right… During exams, sometimes I couldn't*

answer well because I had relied too much on AI. I wasn't using my own thinking at all." (S6). Although AI helped them complete assignments faster, it also limited real learning and lecturer interactions.

4.2.2.2 Helpful Use of AI Without Reducing Interaction

Three students explained that they used AI tools mainly to review or clarify class material after lessons, not to replace their engagement with lecturers. As one participant stated, *"…Sometimes during class I don't fully understand the lesson, so I go back and use AI tools to help explain things more clearly… But in terms of interaction, it's still the same. Nothing's really changed – I still talk to the teacher like before."* (S3). For these learners, AI functioned as a supplementary resource rather than as a replacement for teacher dialogue.

4.2.2.3 Cross-Checking AI Answers with Lecturers

One student demonstrated a deliberately cautious approach, using AI for initial drafting but confirming accuracy with lecturers. *"I feel like if we want to believe something, we should find information from multiple sources—not just trust AI alone… I still talk to and ask my lecturer for advice, too."* (S8). This habit reflects emerging critical AI literacy and reinforces the continuing value of teacher feedback.

4.2.3 *Preferred Conditions for Classroom Integration*

4.2.3.1 Cautious Integration of AI Tools

Two students supported the careful in-class use of AI—for example, to show visuals or check grammar and vocabulary—while stressing that lecturers must verify the content and provide further explanation. *"AI helps me understand faster, but I still need my lecturer to explain some parts. I don't trust it 100%."* (S3). This perspective underscores the importance of teacher mediation.

4.2.3.2 Loss of Interaction

Four students observed that AI-based classroom tasks reduced their motivation to talk to lecturers. Because AI can provide quick help, they felt less need to ask questions or seek clarification. One explained, *"I prefer the teacher's way of explaining things without using AI. Sometimes the answers from AI are not even accurate."* (S6). This shows that while AI can be helpful, it may also encourage more passive learning if not carefully managed.

4.2.3.3 Lack of Confidence in AI

Finally, two students expressed doubts about AI's accuracy and usefulness, describing the outputs as too general or unclear. *"In my opinion, I don't think it really supports much… AI isn't always accurate either."* (S5). Such concerns reinforce the view that AI should remain a supporting tool, with lecturers providing the primary source of reliable explanation.

5. Discussion

This study pursued three objectives: (1) to examine the relationship between the use of AI technologies and the level of social interaction between lecturers and undergraduates in EFL classrooms, (2) to explore the undergraduates' perceptions of how AI technologies influence their interaction with lecturers in EFL

classrooms, and (3) to investigate the students' experiences regarding changes in lecturer–student communication resulting from the use of AI technologies.

The combined quantitative and qualitative findings reveal both confirming and contrasting patterns in how students experience AI in studying English. The survey results showed moderate to high agreement that AI supports learning by providing quick access to information, lowering anxiety, and boosting confidence—outcomes consistent with the evidence that AI chatbots and speaking assistants can enhance enjoyment and willingness to communicate when paired with teacher guidance (Fathi et al., 2024; Huang & Zou, 2024).

At the same time, the interview data exposed persistent caution: many students questioned the accuracy of AI-generated responses. They worried that relying on AI instead of lecturers could weaken the classroom interaction. Although learners welcomed AI as a preparation tool, they continued to view real-time dialogue with lecturers as the foundation of effective language learning. The conceptual framework guiding this discussion is shown in Figure 1.

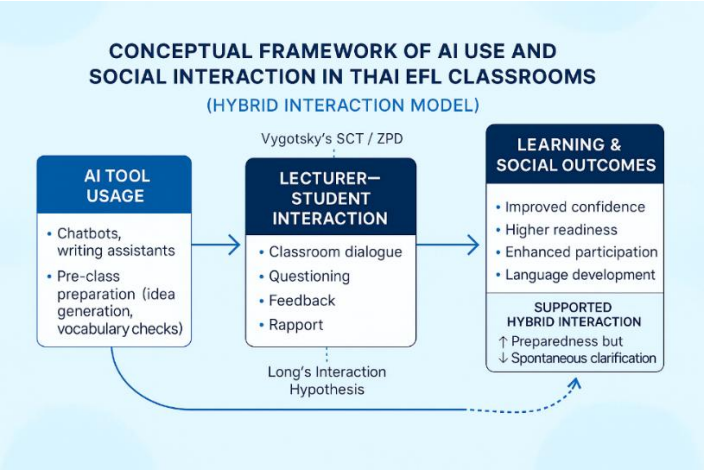

Figure 1: Conceptual framework of AI use and social interaction in Thai EFL classrooms

5.1 Relationship between AI Use and the Lecturer–Student Interaction

Correlation analysis revealed a moderate, negative relationship between the students' AI use and their perceived interaction with the lecturers ($r = -.443$, $p < .01$, $n = 298$). While this does not establish causation, it suggests a potential displacement effect where students turn to AI for quick answers rather than seeking guidance from lecturers. At the same time, the other questionnaire items indicated that when AI is combined with teacher support, interaction quality and confidence improve.

This pattern supports a hybrid interaction model in which AI is used for preparation and routine checks. At the same time, class time remains focused on lecturer guidance and the negotiation of meaning—an approach consistent with sociocultural theory and research, which shows that teacher immediacy drives participation (Hu & Wang, 2023), while an overreliance on AI can erode human connection (Al-Zahrani, 2024; Chan & Hu, 2023).

5.2 Student Perceptions of AI's Influence

Students generally viewed AI as a helpful supplement rather than as a substitute for lecturer interaction. They appreciated AI's ability to provide rapid feedback and practice opportunities, echoing the studies demonstrating that AI tools can enhance fluency and learner confidence (Fathi et al., 2024; Huang & Zou, 2024). However, the interviews highlighted concerns about accuracy and ethical issues, reinforcing earlier findings of mixed trust in AI (Chan & Hu, 2023). Some students also reported greater independence in reading and writing tasks, reflecting Hsiao's (2024) observation that AI can support autonomy when used responsibly. Overall, the learners welcomed AI for preparation but still depended on lecturers for nuanced feedback, creativity, and emotional support.

5.3 Changes in Classroom Communication

The students described two notable shifts in their communication practices. First, many used AI before class to check vocabulary, rehearse ideas, and test explanations, which helped them feel more prepared for in-class participation—this is consistent with the research on AI's role in planning and self-regulation (Hsiao, 2024) and its ability to prime engagement (Ampo et al., 2025). Second, some reported asking fewer routine questions during class because AI could handle surface-level checks. Nevertheless, they continued to approach lecturers for complex issues requiring judgment, supporting the view that teachers remain essential for critical thinking and rapport (Chan & Tsi, 2023; Hu & Wang, 2023). Several students recommended clear guidelines for responsible AI use to balance AI support with active communication (Al-Zahrani, 2024; Chan & Hu, 2023).

5.4 New Contributions

A key insight that extends the prior research is the dual effect of pre-class AI preparation. While earlier studies emphasize AI's benefits for autonomous learning, this study shows how pre-class AI use can simultaneously expand the Zone of Proximal Development and suppress spontaneous lecturer interaction if not carefully mediated. In other words, AI helps students arrive in class more confident and better prepared. However, it can also quiet the small, clarifying questions that typically spark the negotiation of meaning during lessons, a dynamic rarely documented in earlier EFL research.

Taken together, these results reinforce a hybrid interaction model: students exploit AI outside class for preparation and surface-level feedback, while lecturers safeguard deeper engagement through guided discussions and timely feedback in class. This model refines sociocultural theory for the AI era by showing how pre-class AI use extends the ZPD while preserving the lecturer's role in scaffolding higher-order language learning. It also provides actionable direction for teacher training and institutional policy by identifying concrete strategies—such as brief "ask-the-lecturer" moments, process-based assessment, and explicit verification rules—that protect the interaction while leveraging AI's benefits.

6. Conclusion

This study examined how artificial intelligence (AI) tools shape the social interaction between lecturers and undergraduates in Thai EFL classrooms.

Drawing on survey and interview data, the results show that students welcome AI as a preparatory aid for quick access to information, vocabulary checks, and low-stakes practice yet remain cautious about accuracy and overreliance. A consistent dual effect emerged: pre-class AI use helps learners arrive more confident and prepared but it is also moderately associated with fewer spontaneous in-class clarification questions, suggesting a potential displacement of routine lecturer–student touchpoints when AI handles surface checks. This association is correlational rather than causal, but the pattern is robust across the data sources.

Taken together, the findings support a hybrid interaction model: AI is most beneficial outside class for planning and surface-level feedback, while the in-class time remains focused on lecturer guidance, dialogue, and the negotiation of meaning. Framed within Vygotsky's Sociocultural Theory and Long's Interaction Hypothesis, the study refines the current understanding by showing how pre-class AI can broaden the Zone of Proximal Development (greater readiness) even though it risks dampening micro-interactions unless carefully mediated—thereby preserving the lecturer's role in scaffolding higher-order language learning.

Practically, the study underscores the need for clear guidelines for responsible AI use (verification and disclosure), a process-based assessment that evidence AI involvement, and structured "ask-the-lecturer" moments to keep real-time questioning alive. Although conducted at one Thai university, the model offers transferable insights for EFL programs—particularly across Asia—where large classes and uneven access heighten the stakes for protecting interaction. By demonstrating how technology and human dialogue can complement each other, this study contributes to the growing literature on AI in education. It offers concrete strategies for maintaining meaningful lecturer–student relationships in the digital age.

7. Implications for Practice and Policy: Beyond ZPD and Negotiation of Meaning

The findings point to a hybrid interaction model in which AI does the heavy lifting before class—brainstorming, vocabulary checks, rapid drafting—so then we can focus on what matters most in class: human-to-human dialogue guided by lecturer modelling, rapport, and timely intervention. To make this sustainable and to manage the dual effect we observed (greater preparedness but fewer spontaneous clarification moves), practice should extend beyond ZPD and the negotiation of meaning into a broader classroom ecology.

This would include requiring a light evidence trail (a quick prompt/output screenshot or short AI-use log) so then students learn to show their thinking; opening with a short AI-off warm-up to spark curiosity, moving into an AI-on exploration for idea expansion, and then closing with an AI-critique phase where learners justify any revisions, respond to peer challenges, and explain why they trusted—or did not trust—specific AI suggestions. This rhythm keeps talking central and turns verification into a habit rather than an afterthought. To protect interaction, we can weave in regular brief "ask-the-lecturer" moments so then the

questions still land with the human expert and meaning is negotiated in real time, not outsourced to a screen. Assessing the process as well as the product with concise reflections on what AI improved and what still requires teacher feedback is a small move that keeps learning transparent and discourages overreliance.

Equity and clarity are non-negotiable. More steps include publishing a short-approved tools list, setting boundaries for appropriate AI use, and providing low-tech fallbacks so that every student can participate without new costs or accounts. At the program level, aligning the course and departmental policies on AI disclosure, verification steps, privacy/ethics, and consequences for uncritical copying is needed so then the expectations feel consistent rather than arbitrary. Finally, it is necessary to monitor interaction health (weekly counts of student questions, lecturer touchpoints, and peer-feedback turns) and adjust the designs if these indicators dip as AI use rises.

Taken together, these choices harness AI's speed in preparation while preserving the lecturer's central role in guiding the interaction and higher-order language learning. They scale well across EFL contexts in Asia where large class sizes, exam pressure, multilingual realities, and uneven access demand an interaction-first, policy-aligned model that explicitly teaches critical AI literacy. In short, let AI accelerate the draft but let human interactions shape the mind.

8. Limitations and Suggestions for Future Research

This study was conducted at a single Thai university; therefore, the findings reflect a specific institutional and cultural context. Broader sampling across different regions and types of institutions would enhance the generalizability of the results. The questionnaire relied on self-reported data, so future research could incorporate classroom observations or usage logs to capture actual behaviors more accurately. In addition, the time frame of the study was relatively short; adopting a longitudinal design would help reveal how perceptions and interactions evolve across semesters.

Students in this study used multiple AI tools, which made it difficult to isolate the effects of individual applications. Future comparative studies should distinguish between various types of AI tools—such as chatbots, writing assistants, and feedback systems—to better understand their distinct influences. Finally, as most measures were perception-based, future research could include more detailed indicators of lecturer immediacy, the negotiation of meaning, and feedback through classroom discourse analysis.

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Appendix 1

Social Interaction Between Lecturers and Undergraduates in EFL Classrooms: A Case Study from a Thai University in the Age of AI

Section 1: Demographic Information

Instructions: Please fill out the data below and the following questionnaire, making a cross mark (X) which best describes whether you agree or disagree with each statement.

1. Gender: □ Male □ Female □ Other
2. Age: □ 18-20 years old
   □ 21-23 years old
   □ 24-26 years old
3. Academic Background: □ 1st Year □ 2nd Year □ 3rd Year □ 4th Year
4. How often do you use AI tools for English learning?
   □ Very Often
   □ Often
   □ Sometimes
   □ Rarely
   □ Never

Section 2: AI Tool Usage

Instructions: Please indicate your level of agreement with the following statements using the scale below.

No.	AI Tool Usage	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1	I regularly use AI tools to support my English learning.					
2	AI tools help me practice English skills outside the classroom.					
3	Using AI tools increases my confidence in English communication.					
4	I use AI tools to check grammar and writing quality.					
5	AI tools support my reading comprehension in English.					
6	I use AI chatbots to practice speaking English.					
7	AI tools help me expand my English vocabulary.					

8	I feel more motivated to study English when using AI tools.					
9	I rely on AI tools to improve my pronunciation.					
10	I find AI tools effective for English learning.					

Section 3: Lecturer–Student Social Interaction
Instructions: Please indicate your level of agreement with the following statements using the scale below.

No.	Lecturer–Student Social Interaction with AI Integration	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1	I feel more confident interacting with my lecturer in English when I practice using AI tools like ChatGPT or chatbots.					
2	I continue interacting with my lecturer or classmates after using AI tools (e.g., ChatGPT, Grammarly, Quillbot, etc.) outside class.					
3	I am more willing to ask questions or join class discussions when the lecturer encourages using AI tools to prepare answers.					
4	My lecturer uses examples from AI-generated responses (e.g., ChatGPT) to support our classroom interaction.					
5	When I use AI writing tools before submitting assignments, I feel more comfortable discussing feedback with my lecturer.					
6	Practicing conversations with AI tools (e.g., chatbot simulations) helps me engage more with classmates and the lecturer in speaking activities.					
7	My lecturer creates opportunities for students to reflect on AI-generated ideas during the classroom interaction.					

8	I feel that AI tools help reduce my anxiety when interacting with my lecturer in English.					
9	AI-based learning (like using ChatGPT) helps me take on more responsibility when interacting with the lecturer and completing learning tasks.					
10	Combining AI tools and teacher support creates a more interactive and engaging English classroom.					