



Castledown

 OPEN ACCESS

Intercultural Communication Education

ISSN 2209-1041

<https://www.castledown.com/journals/ice/>

Intercultural Communication Education, 8(1), 103127 (2025)

<https://doi.org/10.29140/ice.v8n1.103127>

AI-powered Conversational Agents and Intercultural Learning: Insights from Indonesian EFL Students



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Abstract

Globalization has increased the demand for English proficiency and intercultural competence. However, English instruction in Indonesia often focuses on grammar and vocabulary, with limited emphasis on cultural understanding. Although AI tools are commonly used to support language learning, their potential to promote intercultural learning remains underexplored. This study aimed to investigate how Indonesian EFL students use AI-powered conversational agents to explore cultural perspectives and what cultural insights they gain. The research employed a descriptive phenomenological design involving 15 undergraduate students from five regions in Indonesia. Data were collected through semi-structured interviews and analyzed using inductive thematic analysis. The results showed that students moved from retrieving simple cultural facts to engaging in deeper conversations that supported reflection and critical thinking. They described AI as a non-judgmental partner that allowed

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them to ask sensitive cultural questions. The students learned to distinguish between surface-level cultural practices and deeper values. They also habitually questioned AI-generated content and verified it through other sources. This process helped them build critical AI literacy. The findings suggest that AI tools can support intercultural learning if used with guidance. Teachers are encouraged to design activities that help students reflect on cultural content and develop critical awareness during AI interaction.

Keywords: AI literacy, critical thinking, EFL students, intercultural competence, phenomenological research

Introduction

Globalization has significantly increased the importance of English language proficiency and intercultural competence, particularly for cross-cultural communication. Intercultural Communicative Competence (ICC) has become an essential skill in international domains (Gruber & Wagner, 2024). However, studies show that English language instruction alone has a limited impact on fostering ICC, and many learners report that their classrooms do not adequately promote cultural awareness (Nameni, 2022). To enhance intercultural competence, scholars emphasize the importance of integrating authentic intercultural experiences and practical applications into language education (Omar & Shaalan, 2023). Nevertheless, English Language Teaching (ELT) materials often fail to address these needs, leaving learners underprepared for intercultural communication in a globalized world (Kwok, 2019). Furthermore, many students equate intercultural learning solely with English-speaking cultures, which narrows their understanding of global diversity (Tao, 2025).

In the Indonesian EFL context, language instruction primarily focuses on grammar and vocabulary, with minimal emphasis on intercultural competence. This is influenced by curricular priorities and teacher training programs that often overlook the integration of cultural content (Kusumaningrum, 2018). Pre-service teacher education emphasizes theoretical knowledge without equipping future educators with practical strategies for embedding intercultural elements into lessons. As a result, instructional practices are primarily shaped by linguistic goals rather than cultural understanding (Munandar, 2024). Intercultural content is frequently drawn from textbooks, limiting students' exposure to authentic cultural experiences. Lessons often center around local culture, which may hinder learners' understanding of English within broader global contexts (Putra & Musigrungsi, 2022). Although some educators value intercultural learning, their efforts are constrained by concerns about cultural preservation and the difficulty of integrating diverse cultural perspectives into existing curricula. These challenges highlight the need for real-time cultural exchange, supported by digital tools that facilitate meaningful intercultural engagement (Williyan et al., 2024).

The emergence of Artificial Intelligence (AI) in education offers new opportunities for supporting intercultural learning. AI tools, including chatbots and virtual tutors, can provide personalized instruction, real-time feedback, and interactive simulations (Wulyani et al., 2024). These technologies assist learners in developing not only language skills but also critical thinking and problem-solving abilities (Suriano et al., 2025). AI-powered conversational agents simulate human dialogue, which supports the acquisition of vocabulary, grammar, and communicative competence (Marzuki et al., 2023). Some AI systems are designed with culturally diverse identities, enabling students to explore social norms, values, and communication styles from different cultural backgrounds. This has the potential to promote cultural sensitivity and strengthen ICC (Santhini et al., 2025), though recent work has also highlighted the potential for stereotyping (Dai et al., 2025).

Building on the potential of AI to enhance intercultural sensitivity, these tools also offer pedagogical benefits that foster learner engagement and autonomy (Horn, 2024; Liu & Xiao, 2025). AI-based platforms also offer adaptive learning pathways and round-the-clock access, beneficial for diverse learners (Soon et al., 2024). Tools like ChatGPT allow learners to extend their practice beyond the classroom and receive immediate feedback to support their progress (Aini & Basthomi, 2025). However, ethical concerns such as data privacy, fairness, and academic integrity remain relevant (Zhu et al., 2024). Excessive reliance on AI may reduce opportunities for human interaction, which is critical for developing interpersonal communication. Therefore, using AI in language learning should be balanced with teacher involvement to ensure pedagogical effectiveness (Zulianti et al., 2024).

Previous research has primarily focused on the role of AI in supporting EFL learners' writing, grammar, and vocabulary development (Aini & Basthomi, 2025; Algaraady & Mahyoob, 2023; Chang et al., 2021; Chen & Lin, 2023; Marzuki et al., 2023; Slamet, 2024). However, recent studies such as Dai et al. (2025) show that the potential of AI to foster intercultural learning is only beginning to be explored. Some AI systems, such as MACHE-Bot, include features like empathy, humor, and cultural context that encourage learners to engage with diverse perspectives and support the development of intercultural understanding (Masoudi, 2025). In addition, AI tools facilitate cross-cultural communication by enabling interaction with users from varied backgrounds and providing feedback that enhances intercultural communicative competence (Xia et al., 2024). Although these tools have improved learners' engagement and reduced anxiety, especially in reading tasks (Ai et al., 2024; Hsiao & Chang, 2023), their contribution to cultural learning has not been sufficiently examined. AI-powered conversational agents offer the potential to create immersive and culturally responsive environments tailored to learners' contexts. However, little is known about how Indonesian EFL students engage with these tools to explore cultural perspectives or what cultural insights they gain. This study seeks to address these gaps by examining students' engagement with AI in intercultural contexts and identifying the forms of cultural understanding that emerge from these interactions:

1. How do Indonesian EFL students engage with AI-powered conversational agents to explore cultural perspectives?
2. What cultural insights do students gain from their AI-mediated intercultural interactions?

AI-Powered Conversational Agents in EFL Learning

AI-powered conversational agents, including ChatGPT, Character.ai, and Replika, use natural language processing and machine learning to simulate human-like conversations, allowing for written and spoken interactions (Tai & Chen, 2024). These agents create interactive environments where learners can practice language skills in real time. In written communication, they offer immediate feedback on grammar, syntax, and overall composition, which helps learners improve their writing proficiency and syntactic accuracy (Chang et al., 2021). In spoken communication, the agents engage learners in simulated dialogues, enabling practice in fluency, pronunciation, and conversational competence. Immediate feedback on speech supports language acquisition, and research shows that learners using AI chatbots for speaking tasks demonstrate greater motivation and improved speaking skills (Wang, 2024).

Beyond language production, AI conversational agents support the learning process through adaptive scaffolding. They adjust responses according to the learner's proficiency and provide step-by-step guidance that encourages goal setting, self-monitoring, and strategy use (Apriani et al., 2024). This adaptability enables personalized instruction and promotes self-regulated learning. Jones (2025) notes that despite being trained on diverse data, large language models often oversimplify and stereotype

cultural representations because of their probabilistic nature. This limitation reinforces the importance of SRL, as learners must plan, monitor, and evaluate their interactions with AI to assess outputs and critically avoid unreflective acceptance of biased information. A key feature of these tools is their capacity to deliver instant and targeted feedback, which helps learners identify and correct errors while reinforcing accurate language use (Slamet, 2024). Such feedback facilitates the internalization of language rules and strengthens retention of new forms. These features position AI-powered agents as valuable tools for enhancing language learning in formal and informal contexts.

Previous studies have shown that AI tools support EFL learners in developing writing, speaking, and vocabulary skills by providing immediate, personalized feedback that enhances performance and promotes learner autonomy (Apriani et al., 2024; Han, 2020; Joo, 2024; Marzuki et al., 2023; Slamet, 2024; Tai & Chen, 2024; Wang, 2024). Tools like ChatGPT improve writing proficiency and confidence, while AI chatbots enhance speaking fluency, pronunciation, and interaction in low-anxiety environments. Vocabulary acquisition also benefits from self-correction and reflection, leading to better retention and metalinguistic awareness. Despite these benefits, challenges remain in the Indonesian EFL context, including limited digital infrastructure, teacher preparedness, and ethical concerns such as overreliance and cultural sensitivity in AI responses (Jin et al., 2025). To address these issues, educators require training and support to integrate AI effectively. When implemented thoughtfully, AI can improve learning efficiency, increase student motivation, and promote innovative practices that benefit teaching and learning processes (Apriani et al., 2024; X. Liu & Xiao, 2025; Masoudi, 2025). While existing studies highlight the linguistic benefits of AI-powered conversational agents, their potential for promoting intercultural exploration remains underexplored. In particular, little is known about how Indonesian EFL students engage with these tools to explore cultural perspectives. This gap calls for further research on AI-mediated intercultural learning in the EFL context.

Promoting Intercultural Learning through Technology Integration

Intercultural learning in language education involves understanding and respecting cultural differences and communicating effectively across cultures. Byram (2021) identifies key ICC components, including knowledge of cultural practices, skills to interpret and relate cultural elements, and the ability to engage in new cultural situations. Attitudes such as openness and curiosity are essential, along with the ability to critically evaluate cultural perspectives (Byram, 2021). Developing ICC is an important goal in language education, as it equips learners to interact respectfully and effectively in diverse cultural contexts. Research has shown that it can be meaningfully addressed in ELT through curriculum design and instructional practices that encourage engagement with other cultural perspectives and reflection on learners' own languages, cultures, and identities (Gruber & Wagner, 2024; Ibrahim, 2022).

To support the development of these competencies, technology has become an increasingly valuable resource in language education. Digital tools such as telecollaboration and online learning platforms enable intercultural interaction and promote cultural understanding (Zhang et al., 2023). AI-based applications, including chatbots and virtual reality, offer personalized and immersive experiences that expose learners to various cultural norms and communication styles (Klimova & Chen, 2024). Tools that provide real-time spoken feedback also help students improve communication in intercultural settings (Shadiev et al., 2024). These technologies can increase learner motivation and participation by making intercultural learning more engaging (Shadiev & Sintawati, 2020). However, concerns remain about cultural bias and unequal access to technology, affecting the quality and reach of intercultural education (Salas-Pilco et al., 2022). Despite these challenges, AI-supported learning environments offer promising opportunities to enhance intercultural competence in language education.

Technology-mediated interactions have shown promise in enhancing cross-cultural understanding through various digital platforms. Virtual exchanges, such as asynchronous Padlet communication,

have increased learners' motivation and engagement while fostering positive attitudes toward other cultures (Lee et al., 2024). Online simulations and telecollaboration projects have also supported the development of intercultural communicative competence. For example, Indonesian EFL teachers participating in international telecollaboration reported greater awareness of intercultural principles and applied them in their instructional practices (Batunan et al., 2023). Similarly, digital storytelling and social media platforms like Facebook have facilitated meaningful intercultural dialogue. A study involving Israeli and American students found that participation in a shared Facebook group supported professional growth and cross-cultural engagement, demonstrating the potential of social media for informal intercultural learning (Seifert & Machado, 2025).

Although AI tools have been widely used to support language learning—particularly in improving pronunciation, coherence, and vocabulary (Han, 2020; Joo, 2024; Marzuki et al., 2023; Miranty et al., 2023; Tai & Chen, 2024; Tu, 2020; Wang, 2024; Wulyani et al., 2024; H. Yang et al., 2022), they have rarely been applied to develop intercultural learning. This gap remains evident in many EFL contexts where cultural dimensions are often overlooked in technology integration. Most existing studies have focused on cognitive outcomes, while the intercultural dimension remains insufficiently addressed. Some findings suggest that AI and teacher support can foster emotional security and reduce technostress, creating a potentially supportive environment for intercultural learning (Yang et al., 2025). However, this gap highlights the need to examine how Indonesian EFL students engage with AI-powered conversational agents to explore cultural perspectives and what cultural insights they gain from such AI-mediated interactions.

Methods

Research Design

This study employed a qualitative research design to explore how Indonesian EFL students engaged with AI-powered conversational agents to explore intercultural perspectives. The exploratory nature of the research questions required an in-depth understanding of students' lived experiences rather than the measurement of predefined variables (Creswell & Poth, 2018). A qualitative approach was suitable to capture participants' perspectives, interpretations, and meaning-making in context (Merriam & Tisdell, 2016). Given the limited research on AI and intercultural learning in the Indonesian EFL setting, this approach allowed for rich and detailed exploration of a complex and underexplored phenomenon.

A descriptive phenomenological approach was adopted to understand the essence of students' experiences with AI-mediated intercultural interactions (Moustakas, 1994). This method captured how participants perceived and described their engagement with cultural content through AI. Guided by Husserl's philosophy, the researcher applied bracketing (*epoche*) to set aside assumptions and stay close to the participants' narratives. The aim was to identify shared structures of experience across participants while maintaining fidelity to their own words (Giorgi, 2009). This design aligned with the study's ontological and epistemological stance, which viewed reality as subjective and knowledge as co-constructed through experience (Guba & Lincoln, 1994).

Participants

This study involved 15 undergraduate EFL students from five public and private universities in different regions of Indonesia, including Lampung, Central Java, East Java, West Kalimantan, and South Sulawesi. This geographic distribution was intended to reflect diverse sociocultural and institutional contexts. The sample size aligned with phenomenological research principles, prioritizing depth over breadth (Creswell & Poth, 2018). A total of 15 participants was considered sufficient to achieve thematic saturation, where no new themes emerged from additional interviews, ensuring data adequacy for addressing the research questions. The participant demographic profile is presented in Table 1.

Table 1 *Participant Demographic Profile*

Participant	Gender	University type	Region	Year of study	Primary AI tool used
P1	Female	Public	Lampung	3rd Year	ChatGPT
P2	Male	Private	Central Java	2nd Year	Character.ai
P3	Female	Public	East Java	4th Year	ChatGPT
P4	Female	Private	West Kalimantan	3rd Year	Gemini
P5	Male	Public	South Sulawesi	2nd Year	ChatGPT
P6	Female	Private	Central Java	3rd Year	Gemini
P7	Male	Public	Lampung	4th Year	Character.ai
P8	Female	Public	East Java	2nd Year	ChatGPT
P9	Male	Private	West Kalimantan	3rd Year	Gemini
P10	Female	Public	South Sulawesi	4th Year	ChatGPT
P11	Female	Private	Lampung	2nd Year	Gemini
P12	Male	Public	Central Java	3rd Year	ChatGPT
P13	Female	Private	East Java	4th Year	Gemini
P14	Male	Public	West Kalimantan	2nd Year	ChatGPT
P15	Female	Private	South Sulawesi	3rd Year	Character.ai

Participants were selected using purposive sampling, focusing on individuals with direct experience using AI-powered conversational agents for intercultural learning (Patton, 2015). This decision was based on preliminary observations and informal reports from students who had engaged with these tools independently for cultural exploration, even though such practices are not yet common in formal EFL pedagogy. Within this framework, maximum variation sampling was applied to ensure diversity across regional, institutional, and cultural backgrounds. Cultural diversity was represented by including students from different Indonesian provinces, each of which reflects distinct ethnic, linguistic, and sociocultural traditions that shaped their perspectives on AI-mediated intercultural learning. This approach aimed to capture common patterns and context-specific variations in AI-mediated intercultural engagement. Such diversity strengthened the credibility of the findings by demonstrating that emerging themes were not limited to a homogeneous group but appeared across a wide range of experiences. Inclusion criteria required participants to be enrolled in an English Language Education program, have used AI conversational agents for exploring cultural perspectives, be proficient in English, and be willing to participate in a 60–90-minute Zoom interview. Participants were excluded if they used AI only for linguistic tasks without cultural objectives, could not provide specific examples of their AI use for cultural learning, or declined audio recording of the interview. Before joining the study, participants had already used AI tools such as ChatGPT, Gemini, and Character.ai to explore cultural practices, social values, and communication styles, and these prior experiences became part of the inclusion criteria to ensure their relevance to the focus on intercultural learning.

After defining the sampling strategy and eligibility criteria, participants were recruited through multiple channels, including referrals from university gatekeepers such as lecturers and heads of English departments and postings in student social media groups affiliated with selected universities. Interested students received a detailed Participant Information Sheet outlining the study's purpose, the voluntary nature of participation, potential risks and benefits, and confidentiality measures. A two-stage informed consent process was implemented. First, participants completed an online consent form that reiterated

the key information. Second, verbal confirmation was obtained at the beginning of each interview, during which explicit permission to record was requested. Participants were reminded that they could refuse to answer any question, pause the interview, or withdraw at any time without consequence. These recruitment and consent procedures ensured ethical participation and transparency before collecting data.

Instrument

This study used a semi-structured interview protocol as the primary instrument for data collection. This format was suitable for phenomenological research, as it combined a set of core open-ended questions with the flexibility to explore emerging themes. The structure ensured that essential aspects of the research topic were addressed while allowing participants to share detailed narratives based on their lived experiences. Follow-up and probing questions were used to elicit richer accounts and clarify specific responses. The questions were carefully designed to encourage participants to describe real events and situations rather than provide abstract opinions, using prompts such as “Can you tell me about a time when...” and “Describe how you...”.

The development of the protocol followed a structured three-step process. First, a comprehensive set of questions was created based on the two research questions, focusing on participants’ direct experiences with AI for cultural learning. In this step, the formulation of each question was explicitly anchored in theoretical construct of intercultural communicative competence (Byram, 2021), including knowledge, skills, and attitudes, and in the principles of critical AI literacy (Eguchi et al., 2021), which emphasize questioning, verifying, and reflecting on AI-generated information. Second, the questions were organized logically to support a smooth conversational flow. The interview began with general questions about the use of technology, followed by detailed prompts related to AI-mediated intercultural engagement, and ended with a reflective closing question. To ensure conceptual validity, each question was mapped to relevant constructs and aligned with prior validated instruments used in intercultural learning and AI literacy studies (Klimova & Chen, 2024; Shahriar, 2025). Third, the protocol was piloted with two EFL students who were not part of the final sample. These pilot interviews were reviewed to assess clarity, relevance, and the capacity of the questions to generate meaningful data. Feedback from the pilot participants was used to revise the wording and order of the questions.

Table 2 *Mapping of the Interview Questions*

Research question (RQ)	Main interview question	Potential probes	Rationale	Theoretical construct
RQ1: How do Indonesian EFL students engage with AI-powered conversational agents to explore cultural perspectives?	1. Can you walk me through a recent and memorable time you used an AI tool like ChatGPT to learn about a different culture? What was your initial goal?	– What specific AI tool did you use (e.g., ChatGPT, Character.ai)? – What prompts or questions did you use to start the conversation? - Can you describe the back-and-forth interaction? How did the AI respond? – What strategies did you use if the AI gave you a generic or unhelpful answer?	To elicit a detailed narrative of the interaction process, focus on student agency, goals, prompting strategies, and engagement patterns (Kim et al., 2025).	ICC – Knowledge of cultural practices and interaction skills (Byram, 2021). Critical AI Literacy – Developing strategies to refine prompts and evaluate AI responses (Eguchi et al., 2021).

(Continued)

Research question (RQ)	Main interview question	Potential probes	Rationale	Theoretical construct
RQ2: What cultural insights do students gain from their AI-mediated intercultural interactions?	2. Thinking about your interactions with AI for cultural topics, would you describe your approach as more of a question-and-answer session, a collaborative brainstorming partner, or something else?	– Do you typically direct the AI with particular instructions or prefer more open-ended exploration? – How do you decide what to ask next in a conversation? – Can you give an example of a prompt that worked well, and one that didn't?	To identify distinct engagement patterns (e.g., student-directed vs. collaborative) and understand the sophistication and nature of the prompts students use. (Kim et al., 2025)	ICC – Skills of interaction and interpretation (Byram, 2021). Critical AI Literacy – Exploring engagement patterns as part of reflective AI use (Eguchi et al., 2021).
	3. Tell me about a specific cultural insight or a moment of new understanding you gained from one of these AI interactions. What was it that surprised you or changed your perspective?	– What was the cultural topic you were exploring? - What did the AI tell you that was new or unexpected? – Did this interaction challenge your previous beliefs or stereotypes about that culture? – How did this insight make you feel or think differently?	To capture concrete examples of learning, focusing on the transformative “aha” moments that constitute genuine cultural insight and a potential shift in perspective (Xia et al., 2024).	ICC – Attitudes of openness and curiosity, and critical evaluation of perspectives (Byram, 2021).
	4. What kind of knowledge do you gain when you learn about culture from AI? Is it more about surface-level facts (e.g., holidays, food, etiquette rules) or deeper values and communication styles?	– Can you give an example of learning about a “surface” cultural fact? – Can you give an example of learning about a “deeper” cultural value or belief? – How effective is AI at explaining the ‘why’ behind certain cultural practices or beliefs?	To differentiate between surface and deep cultural learning and to assess the perceived depth and quality of AI-generated cultural insights (Zhang et al., 2025).	ICC – Differentiating surface and deep culture (Byram, 2021). Critical AI Literacy – Questioning and verifying depth of AI responses (Eguchi et al., 2021).
Both RQs	5. What are your biggest challenges or limitations when using AI for intercultural learning?	– Have you ever received biased, stereotypical, or inaccurate information? – How do you, or would you, verify the cultural information you get from an AI? – Does the AI's “personality” or responses feel culturally neutral, or does it seem to have a specific cultural perspective?	To explore the critical dimensions of the experience, including perceived limitations, the challenge of AI bias, and the development of students' critical AI literacy (Shahriar, 2025).	ICC – Critical cultural awareness (Byram, 2021). Critical AI Literacy – Identifying bias, verifying information, and reflecting on AI limitations (Eguchi et al., 2021)

After the protocol was finalized, the interviews were conducted primarily in English to capture participants' experiences as EFL learners. Indonesian was occasionally used when clarification was needed to ensure accuracy and completeness of the responses. Recruitment was facilitated through referrals from university gatekeepers, such as lecturers and heads of English departments, and postings in student social media groups. Interested students received a detailed Participant Information Sheet that explained the purpose of the study, the voluntary nature of participation, potential risks and benefits, and confidentiality measures. A two-stage informed consent process was followed. First, participants completed an online consent form. Second, verbal confirmation was obtained at the start of each interview, during which explicit permission to record was requested. Participants were reminded that they could refuse to answer any question, pause the interview, or withdraw at any time without consequence.

All interviews were conducted via Zoom to accommodate participants from diverse regions. Each session lasted between 60 and 90 minutes. A secure meeting link was provided to each participant, and the waiting room feature was used to control access. Only audio was recorded, with permission, and the files were stored securely on a password-protected local device. Recordings were transcribed verbatim, including relevant pauses and tone. To protect anonymity, all identifying information was removed and replaced with pseudonyms. These ethical safeguards ensured transparency, voluntary participation, and the protection of participant identities throughout the study.

Data Analysis

The data from the verbatim interview transcripts were analyzed using inductive thematic analysis. This method allowed codes and themes to emerge directly from the data, rather than being shaped by pre-existing theories or researcher bias (Braun & Clarke, 2006). It was particularly suitable for this exploratory and phenomenological study, as it enabled the identification of patterns grounded in participants' lived experiences. The analysis followed Braun and Clarke's six-phase framework, which is widely recognized for its methodological rigor and flexibility. This iterative process allowed the researcher to move back and forth between phases to refine understanding. Reflexivity was a key element, requiring ongoing self-awareness of the researcher's role and influence in shaping the findings (Braun et al., 2015).

The six phases included: (1) familiarization with the data through repeated reading and reflective journaling; (2) generating initial codes to label meaningful data segments; (3) constructing initial themes by organizing related codes into broader patterns; (4) reviewing themes through a two-step validation process to ensure internal consistency and alignment with the full dataset; (5) defining and naming themes with clarity and relevance to the research questions; and (6) producing a final report that integrated detailed theme descriptions and illustrative quotes into a coherent narrative. To manage the data efficiently, qualitative analysis software such as NVivo was used to organize and retrieve coded segments. However, all analytical decisions, including coding and theme development, remained the researcher's responsibility.

Ethical Considerations

This study adhered to Guba & Lincoln's (1994) framework of trustworthiness to ensure ethical rigor and methodological integrity. The framework includes four key criteria: credibility, transferability, dependability, and confirmability. Credibility was strengthened through peer debriefing with a qualitative TEFL expert and member checking with selected participants, allowing for external critique and participant validation of the themes. To support transferability, the study provided a detailed

description of the research context, participant selection, and analytical procedures, enabling readers to assess relevance to their contexts. Dependability and confirmability were ensured by creating a comprehensive audit trail, which documented all research steps, including raw data, codebooks, analytic memos, thematic maps, process notes, and instrument development materials. This audit trail allowed for transparent tracing of decisions and interpretations, confirming that the findings were grounded in the data rather than researcher bias.

Results

Thematic analysis of the interview data generated six key themes aligned with the two research questions, highlighting how Indonesian EFL students engaged with AI-powered conversational agents for intercultural learning and the cultural insights gained through these interactions. A summary of the themes is presented in Table 3 and further explained in the following sections.

Table 3 *Summary of Thematic Analysis*

Research question	Theme	Definition
RQ1: How do Indonesian EFL students engage with AI-powered conversational agents to explore cultural perspectives?	Theme 1: AI as an On-Demand Cultural Informant	Students' initial and primary mode of engagement, using AI as a quick, accessible alternative to search engines for factual, surface-level cultural information.
	Theme 2: Iterative Prompting as a Strategy for Deeper Inquiry	A more advanced engagement pattern where students learn to refine, rephrase, and layer their prompts to move beyond generic AI responses and elicit more nuanced details.
	Theme 3: The AI as a Non-Judgmental Practice Partner	Students use AI as a safe, private space to ask "stupid" or culturally sensitive questions they would be hesitant to pose to a human teacher or peer.
RQ2: What cultural insights do students gain from their AI-mediated intercultural interactions?	Theme 4: Differentiating Surface from Deep Culture	A cognitive shift where students begin to distinguish between observable cultural products (food, festivals) and the underlying values and beliefs that inform them.
	Theme 5: Confronting and Deconstructing AI-Generated Stereotypes	Critical moments of awareness are when students recognize and question biased, oversimplified, or stereotypical representations of cultures provided by AI.
	Theme 6: Developing a 'Critical AI Gaze' for Intercultural Learning	An emergent metacognitive practice where students learn to treat AI-generated information with skepticism, actively seeking to verify it through other sources.

To complement this thematic summary and to provide a clearer picture of the technological dimension, Table 4 categorizes the AI tools used by participants, outlines their primary functions, and illustrates how they supported intercultural learning. This table also assigns each tool type to the relevant themes, strengthening the findings' practical contribution.

Table 4 *AI Tools, Functions, and Applications in Intercultural Learning*

AI tool category	Examples reported by participants	Primary functions	Applications in intercultural learning	Linked themes from analysis
General-purpose conversational agents	ChatGPT, Gemini	Provide factual knowledge, explain cultural norms, and generate examples and scenarios	Used to retrieve surface-level cultural facts (e.g., etiquette, festivals) and explore deeper values when guided with iterative prompts	Theme 1: AI as On-Demand Informant; Theme 2: Iterative Prompting; Theme 4: Differentiating Surface from Deep Culture
Character-based conversational agents	Character.ai	Simulate dialogue with culturally diverse personas, role-play scenarios	Engaged students in interactive conversations that mirrored intercultural encounters, allowing them to test communicative strategies and reflect on cultural norms	Theme 2: Iterative Prompting; Theme 3: Non-Judgmental Partner; Theme 4: Differentiating Surface from Deep Culture
Context-specific AI platforms	Gemini with specialized prompts, other task-oriented chatbots	Provide adaptive responses, simulate professional or cultural contexts	Helped students explore sensitive cultural issues, such as religion or social hierarchies, in a psychologically safe environment	Theme 3: Non-Judgmental Partner; Theme 5: Challenging AI-Generated Stereotypes
Critical reflection and verification tools	ChatGPT with fact-checking prompts, combined with external sources	Support critical evaluation and verification of AI outputs	Encouraged students to question stereotypes, identify bias, and cross-check cultural information with credible sources	Theme 5: Confronting Stereotypes; Theme 6: Developing a Critical AI Gaze

RQ1: Patterns of Engagement: From Information Retrieval to Critical Dialogue

The analysis showed that students perceived their engagement with AI for intercultural learning as moving from basic information-seeking toward more interactive use that involved strategic questioning and reflection. These perceptions highlight how participants understood and described their experiences rather than documenting actual progression.

Theme 1: AI as an On-Demand Cultural Informant

The most common initial engagement pattern among participants was using AI as an on-demand cultural resource. Students used conversational agents like ChatGPT and Gemini to obtain quick, factual information about cultural practices, social norms, holidays, and etiquette. These interactions were typically driven by academic assignments or personal interest. Students asked direct questions, viewing the AI as a more efficient and user-friendly alternative to traditional search engines. The AI's ability to deliver concise and personalized responses in natural language was considered a significant benefit. P03, a fourth-year student from East Java, stated, *"It's faster than Google. If I need to know about table manners in Germany for a class presentation, I just ask, and I get a neat, bullet-pointed list instantly."* P11, a second-year student, added, *"When I start a project on a new country, my first step is to ask the AI for the top five cultural facts. It gives me a good starting point."* These accounts suggest that AI tools functioned as accessible entry points to cultural content, offering foundational knowledge for further exploration.

Theme 2: Iterative Prompting as a Strategy for Deeper Inquiry

As students became more familiar with AI tools, their engagement evolved into a more refined strategy known as iterative prompting. They realized that broad or vague questions often resulted in generic answers. To address this, they began to provide more specific context, narrow the focus, and use follow-up questions to elicit nuanced cultural insights. This strategy was especially evident when using general-purpose agents such as ChatGPT or Gemini, which could shift from surface facts to deeper cultural values if guided with well-structured prompts, and character-based agents like Character.ai that allowed students to test alternative phrasings in simulated dialogues. P12, a third-year student from Central Java, reflected on this shift: *“At first, I asked, ‘What is Japanese culture?’ and got a boring answer. Now I ask, ‘Explain the concept of uchi-soto in Japanese business communication and give me a dialogue example where a subordinate disagrees with a superior.’”* Refining prompts through experimentation became an essential skill for maximizing the value of generative AI. While several participants progressed toward more refined iterative prompting, this pattern was not uniform, as some continued to depend on surface-level questions or applied the strategy inconsistently. P02, a frequent user of Character.ai, shared a similar experience: *“If the AI character gives a weird response, I don’t just give up. I rephrase my question or tell it, ‘Pretend you are a university student in Seoul and tell me...’ to get a better answer.”*

Theme 3: The AI as a Non-Judgmental Practice Partner

Many participants described AI as a private and non-judgmental partner for exploring sensitive cultural issues. This was particularly important for topics such as religion, gender, and social hierarchies, which students felt uncomfortable discussing with teachers or peers. Character-based agents such as Character.ai and context-specific AI platforms like Gemini with tailored prompts created safe spaces for students to pose delicate questions, while general-purpose agents such as ChatGPT provided culturally neutral responses that reduced fear of judgment. P08, a second-year student from East Java, explained, *“I was curious about religious dating norms in conservative cultures, but I would never ask my lecturer. AI allows me to ask anything without feeling embarrassed or judged.”* Similarly, P15 noted, *“You can ask the ‘stupid questions’ to the AI. With a person, you have to be polite, but with the bot, you can just be curious.”* These experiences highlight the potential of AI tools to support intercultural learning by providing a safe space for discussing complex or uncomfortable topics.

RQ2: Gaining Cultural Insight: From Facts to Critical Consciousness

The cultural insights students gained from their AI interactions extended beyond factual knowledge. The analysis showed a development toward more reflective understanding, leading to critical awareness of cultural complexity and AI’s limitations as an information source.

Theme 4: Differentiating Surface from Deep Culture

Participants reported gradually moving from focusing on observable cultural practices to recognizing deeper values and beliefs. Initially, they used AI for factual information such as holidays, food, or etiquette. Over time, they discovered that well-crafted prompts could encourage the AI to explain the reasoning behind certain practices. This progression was most visible with general-purpose agents such as ChatGPT and Gemini, which provided layered explanations, and Character.ai, which allowed students to role-play culturally specific scenarios. P05, a student from South Sulawesi, noted, *“I used to think culture was just about food and holidays. But after asking the AI to explain why punctuality is so important in Germany, I started to understand it’s about deeper values like respect and efficiency.”* Similarly, P04 shared, *“The AI explained that in some collectivist cultures, indirect communication*

isn't about being dishonest; it's about maintaining group harmony. That completely changed my perspective." These examples show how AI can help students develop a more analytical and reflective understanding of culture. Several participants also compared their experiences of learning with AI to learning with humans, explaining that while AI was helpful for exploring cultural topics at an early stage, conversations with peers or lecturers were still necessary to validate information and gain deeper cultural understanding.

Theme 5: Confronting and Deconstructing AI-Generated Stereotypes

Some of the most impactful learning moments occurred when students encountered biased or stereotypical responses from AI. Instead of accepting these passively, students reflected critically on their accuracy and fairness. Participants reported this most often with general-purpose tools like ChatGPT and Gemini, but they also observed stereotypes when using Character.ai personas that exaggerated cultural traits. These experiences encouraged students to shift into critical reflection, sometimes supported by verification strategies that combined AI outputs with external sources. P14, a student from West Kalimantan, shared, *"I asked about my own culture, Dayak culture, and it gave me a very stereotypical, almost primitive description. I was angry, but it also made me realize the AI is not a reliable expert and is biased."* Such incidents encouraged students to draw on their cultural knowledge or seek alternative sources to challenge the AI's portrayal. P09 also reflected, *"It told me all people from a certain country were [a negative stereotype]. I knew that wasn't true, and it made me think about where the AI gets its bad ideas from."* These moments, though negative, became opportunities for critical learning and increased awareness of the limitations and biases embedded in AI-generated content.

Theme 6: Developing a 'Critical AI Gaze' for Intercultural Learning

Students developed a critical stance toward AI based on their experiences with stereotypes and inaccuracies. They treated AI responses as starting points rather than final answers, cross-checking them with journals, websites, and cultural forums. Combining ChatGPT with verification strategies often facilitated this process, positioning AI as a reflection tool rather than an authority. In doing so, students engaged in critical AI literacy, learning to identify bias, triangulate information, and treat AI outputs with skepticism. P10, a fourth-year student, explained, *"I never trust ChatGPT 100 percent for culture. I use it to get ideas, but then I always check with a journal article or a trusted website to see if it's true."* This habit marked a move from passive consumption to active evaluation. As P01 stated, *"Using AI for culture has taught me to be a more critical reader of everything, not just from the AI but from the internet in general"*. This development indicates a growing awareness of the limitations of AI and the importance of critical digital literacy.

Discussion

Based on the findings, the study identified students' perceived movement from basic use of AI to more complex forms of engagement when exploring cultural perspectives. Although many participants expressed this perceived progression, others noted difficulties and variations, indicating that learner engagement was not uniform across the group. This progression mirrors the principles of self-regulated learning (SRL). The analysis provides evidence of students' perceived progression through SRL, most clearly in Theme 2 and Theme 6, where participants explained how they planned their inquiries, adjusted their prompts, and reflected on AI feedback. These patterns indicate that learners perceived their engagement as involving the key phases of SRL. This finding is consistent with recent research by Namaziandost (2025), who demonstrated that structured AI interaction fosters key metacognitive strategies in language learners, particularly in planning and monitoring their learning process. This suggests AI chatbots are not just sources of information. They can also serve as tools to develop

students' metacognitive abilities. The interactive nature of the AI encourages students to take control of their learning process and experiment with different strategies (Qiao & Zhao, 2023). This eventually promotes greater learner independence and self-direction.

Furthermore, students viewed the AI as a non-judgmental partner for practice. This observation supports extensive research on the affective advantages of AI in language education. This aligns with research by Ma and Yang (2025), who note that AI conversation partners are particularly effective in Asian educational contexts where saving face is culturally significant, thereby reducing communication apprehension more than peer practice might. Previous studies consistently show that AI chatbots can lower language learning anxiety (Hsu et al., 2023). They provide a safe and private space where learners can practice without fear of criticism. This study confirms that this benefit applies to intercultural discussions, as seen in Theme 3, where students described AI as a non-judgmental partner for exploring sensitive cultural topics. Participants explained that the safe space provided by AI reduced their fear of asking culturally inappropriate questions, which allowed more genuine dialogue to occur (Santhini et al., 2025). AI tools reduce this barrier by offering an anonymous and impartial conversation partner. This allows students to explore sensitive topics they might avoid in a classroom, creating important learning opportunities.

The research highlights a significant tension in using AI for intercultural learning. On one side, AI shows considerable potential to deepen cultural understanding, as seen in Theme 4, where students distinguished between surface-level practices and deeper cultural values. These findings indicate that participants perceived AI as a tool that supported more reflective engagement with cultural perspectives. The tools can help students distinguish between superficial and profound cultural aspects, a key goal of ICC (Kulikov & Shirokova, 2021). When used effectively, AI can present complex cultural scenarios more dynamically than traditional textbooks. (Marinucci et al., 2023). However, this potential is challenged by a significant risk: the technology's inherent bias. Participants frequently encountered stereotypes and inaccuracies. This was most evident in Theme 5, where several students described how AI-generated responses sometimes presented cultures in biased or overly simplistic ways, such as reducing Dayak culture to primitive traits. Instead of passively accepting these outputs, participants engaged in critical questioning, compared the information with their cultural knowledge, and verified it through external sources. This process not only helped them recognize the limitations of AI but also fostered deeper reflection on the complexity of cultural perspectives and the need for critical engagement in intercultural learning. This provides practical evidence of the systemic cultural bias documented in large language models (LLMs). This observation strongly resonates with the seminal work of Ornstein et al. (2025), who cautioned that LLMs, as "stochastic parrots," often reproduce and amplify the societal biases present in their vast training data, leading to the perpetuation of harmful stereotypes. These models are trained on internet data that heavily favors Western perspectives (Liu, 2025). As a result, they can misrepresent cultural diversity and promote harmful stereotypes. For example, one participant noted the AI's depiction of their Dayak culture was simplistic and inaccurate. This demonstrates that AI often lacks the nuance and context required for genuine cultural insight, making critical human supervision necessary.

A key insight from this study involves a new perspective on the educational value of AI. The students' development from uncritical users into critical evaluators is particularly noteworthy. This progression suggests the main educational benefit may not be the cultural content itself. Instead, it is the critical thinking skills students acquire during the process. Their development of a "critical AI gaze" is a direct application of what is now called critical AI literacy (Eguchi et al., 2021). Students learned to be skeptical, question biased information, and verify AI-generated content with other sources (Moorhouse & Wong, 2025). These actions are central components of this new literacy, which includes evaluating AI technologies and understanding their limitations.

This reorients the role of the educator. The goal is not just to use AI to teach about culture. It is to use the inherent flaws of AI as a tool to teach critical thinking. Scholars like Leander and Burriess (2020) strongly support this pedagogical reorientation, arguing that true digital literacy in the age of AI must move beyond functional skills to encompass a critical understanding of these systems' power, ideology, and limitations. The AI's imperfections, such as bias and inaccuracy, become valuable learning opportunities. They require students to move beyond passive information consumption. Instead, students must actively verify sources and engage in critical analysis. Therefore, the best teaching strategies will encourage students to challenge and critique the AI's output, turning the technology's weakness into an educational advantage (Haroud & Saqri, 2025).

Although the findings hold global relevance, their application must be situated within the Indonesian context, where the integration of AI faces distinct challenges. These include disparities in internet access, uneven digital literacy among students and teachers, and a persistent digital divide, especially between urban and rural areas (Mandasari et al., 2025). Effective use of AI in education requires technological infrastructure and sustained training and support for educators. Moreover, studies have identified a skills gap among Indonesian university students, who are proficient in basic digital tasks but less capable in critical thinking and evaluative skills. This raises concerns about the risks of over-relying on AI for cultural learning, as students may accept biased or inaccurate content without sufficient scrutiny (Marinucci et al., 2023). As such, incorporating critical AI literacy into the curriculum enables students to interact with AI tools in a more reflective and informed manner, taking into account their particular educational and cultural backgrounds. Although the study provides meaningful insights, its findings must be cautiously viewed. Since the participants came from a distinct Indonesian context, their experiences may not reflect those of EFL learners in other regions or countries. Consequently, the applicability of these results to broader populations remains limited without further validation across diverse cultural settings.

Positioning this research in Indonesia also provides relevant insights beyond the local context. The findings contribute to international debates on how interaction with AI systems influences intercultural learning by showing opportunities and risks. This is consistent with (Dai, Hua, et al., 2025), who found that repeated engagement with LLM-powered chatbots can reinforce cultural stereotypes unless learners develop Critical Interactional Competence (CritIC) to evaluate AI-generated responses critically. The results also align with (Dai, Suzuki, et al., 2025), who demonstrate that GenAI can support intercultural professional communication skills when carefully integrated into educational practice. These connections suggest that the Indonesian case can inform research in other multilingual and multicultural contexts by showing how students can critically use AI tools to negotiate cultural meaning.

Conclusion

This study investigated how Indonesian EFL students interact with AI-powered conversational agents to support intercultural learning and what insights they gain from these interactions. The findings show that students used AI to retrieve cultural facts and engage in increasingly complex dialogues that encouraged critical reflection and metacognitive development. Students reported a progression from basic information-seeking to deeper inquiry, supported by the AI's role as a non-judgmental interlocutor that provided a safe space for discussing culturally sensitive topics. This sense of psychological safety reduced learners' affective barriers and enabled them to distinguish between surface cultural practices and underlying values. As students encountered biases and inaccuracies in AI-generated content, they developed a critical stance toward the technology. This "critical AI gaze" led them to question, verify, and reflect on the information they received, showing that the limitations of AI can themselves serve as a pedagogical tool for cultivating critical AI literacy.

This study also presents several pedagogical implications for English language teaching. Educators are encouraged to reframe AI as a tool for content delivery and as a collaborative partner in fostering critical inquiry. Instructional tasks should promote active engagement with AI-generated responses, requiring learners to question and validate information through credible external sources. Such practices move students from passive information retrieval to developing critical digital literacy. Additionally, EFL programs should incorporate explicit instruction on critical AI literacy, including principles of large language models, algorithmic bias, prompt design, and ethical content verification. At the same time, the study has limitations that must be acknowledged. The qualitative design and small sample size restrict the generalizability of the findings, and the absence of direct observation of students' interactions with AI limits the ability to capture behavioral dynamics during the learning process. Future studies should adopt larger and more diverse samples, combine interviews with classroom or online observations, and extend the investigation to other cultural and educational settings. Such efforts will deepen understanding of how AI can support intercultural competence and provide stronger foundations for pedagogical models that balance the opportunities and risks of AI use in education.

Acknowledgement

The authors would like to express their sincere gratitude to the Indonesian Education Scholarship (BPI), the Centre for Higher Education Assessment and Funding (PPAPT), the Education Fund Management Agency (LPDP), and the Ministry of Higher Education, Science, and Technology of the Republic of Indonesia for their support and funding of this research.

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