

Development of an Artificial Intelligence-Based Digital Platform: Enhancing Intercultural Communication Among University Students

Muhammad Abiyyu De Rossi^{1*}, Mhd Agri Amri², Rita hartati³, Nadia Kumari⁴, Junior
Elfrida Sihotang⁵, Azzahrah Andrianti⁶

Email: muhammadabiyyuderossi0306@gmail.com*, agriamri7@gmail.com,
ritahartati@unimed.ac.id, nadiakumari317@gmail.com, juniarsitohang79@gmail.com,
azzahrahandrianti@gmail.com

^{1,2,3,4,5,6} Universitas Negeri Medan, Indonesia

Received: 14 July 2026

Accepted: 29 August 2026

Published: 15 September 2026

Abstract

Artificial Intelligence (AI) is increasingly used to support communication and learning in culturally diverse higher-education environments. This study examined the potential of an AI-based digital platform to enhance university students' intercultural communication competence and explored their perceptions of the platform. A quantitative pre-experimental design employing a one-group pre-test–post-test model was used with 50 undergraduate students from diverse cultural, linguistic, and regional backgrounds. Intercultural communication competence was measured before and after the AI-supported learning intervention across seven dimensions: cultural awareness, cultural empathy, respect for cultural diversity, cross-cultural communication confidence, communication adaptability, appropriate language use across cultures, and conflict management in intercultural contexts. A post-intervention questionnaire was also administered to assess students' perceptions of the platform. Descriptive analysis showed that the overall mean intercultural communication competence score increased from 3.13 in the pre-test to 4.44 in the post-test. Post-test scores improved across all seven dimensions, with respect for cultural diversity obtaining the highest mean score ($M = 4.58$), while conflict management recorded the lowest post-test mean ($M = 4.33$). Students also reported highly positive perceptions of the platform, with an overall mean of 4.58. The findings indicate that AI-supported learning may facilitate cultural awareness, communication adaptability, culturally appropriate language use, confidence, and intercultural reflection. The study highlights the pedagogical potential of AI as a reflective communication-support tool while emphasizing that human judgment, cultural sensitivity, and critical AI literacy should remain central to intercultural learning.

Keywords: *Artificial Intelligence, intercultural communication, sociocultural, digital literacy, university students, phenomenology.*

INTRODUCTION

The increasingly massive digital transformation of the past decade has changed the way people interact, learn, and build cross-cultural social relationships. In higher education settings, students no longer communicate only with individuals from the same cultural background, but also with peers, lecturers, and academic communities from various regions and countries through digital platforms. This condition presents both opportunities and challenges. On one hand, digital technology expands access to information and global collaboration; on the other hand, differences

in cultural values, communication styles, language use, and ways of interpreting messages often lead to misunderstandings in academic interactions. This phenomenon is increasingly evident among students involved in project-based learning, student exchanges, virtual conferences, and collaborative activities on digital media. Based on initial observations of several students in language and literature study programs at Indonesian universities, it was found that differences in communication styles among students from different cultural backgrounds often affect the effectiveness of academic collaboration and interaction in group work. Some students reported difficulty in understanding implicit meanings in messages, adjusting their language style to diverse audiences, and managing differing perspectives when communicating with students from different cultural backgrounds. Exploratory interview results show that many students have begun using various Artificial Intelligence (AI)-based platforms, such as intelligent translation applications, generative chatbots, and AI-based communication assistants, to help understand the context of cross-cultural communication, obtain recommendations for appropriate language use, and improve the effectiveness of interaction in multicultural academic environments.

The emergence of AI technology in higher education has introduced a new paradigm in the learning process and digital communication. Various AI platforms not only function as language translation tools but are also able to provide communication recommendations suited to particular cultural contexts, help users understand nuances of meaning in digital interactions, and provide real-time feedback on language use in cross-cultural communication situations. In the global context, the development of generative AI has driven significant changes in academic communication practices, professional communication, and cross-cultural learning. Meanwhile, in the Indonesian context, which has a very high degree of ethnic, linguistic, and cultural diversity, the use of AI is becoming increasingly relevant as a means of bridging communication gaps while enhancing students' intercultural communication competence. The urgency of this research is further heightened by the demands of 21st-century skills, which place digital literacy and intercultural communication as core competencies for higher-education graduates. Various educational institutions have begun integrating AI technology into the learning process; however, its implementation continues to raise questions related to user experience, the process of social adaptation, and the meanings students construct when interacting with this technology. Therefore, a study is needed that not only quantitatively measures the effectiveness of AI, but also understands how this technology supports students in building effective communication in a multicultural academic environment.

Over the past five years, research on AI in education has increased significantly. Research conducted by Chan (2023) shows that generative AI has great potential in supporting the learning process and the development of thinking skills. Another study by Dwivedi et al. (2023) confirms that the use of AI in higher education can improve learning productivity while opening new opportunities for the personalization of learning. Research by Farrell and Brunton (2024) shows that students utilize AI to support academic activities through the provision of recommendations, feedback, and the completion of various learning tasks. In addition, Grassini (2023) explains that digital technology has the potential to become a mediator that helps individuals understand cultural differences and reduce communication barriers in multicultural environments. Nevertheless, most previous research has still focused on technical aspects, the effectiveness of AI use, or the level of technology acceptance. These studies generally use a quantitative approach that emphasizes the measurement of system performance (Kasneci et al., 2023), the level of technology adoption, or the efficiency of digital platform use. There is still relatively little research exploring how students use AI platforms to manage intercultural communication, how this interaction process unfolds in

daily academic life, and how AI shapes new communication practices in multicultural higher-education environments (Molenaar, 2022). Thus, there is a research gap related to user experience, social processes, and the development of intercultural communication competence through the use of technology (Alharbi, 2024; Johnston et al., 2024).

This research is grounded in the concept of Intercultural Communication Competence (ICC), which explains a person's ability to communicate effectively and appropriately with individuals from different cultural backgrounds (Passantino, 2024; Qin, 2024; Song & Song, 2023). In an increasingly digitalized higher-education environment, students are required to possess not only language proficiency but also cultural awareness, empathy, adaptability, and interpersonal relationship-building skills with individuals from various cultures (Waltzer, Pilegard, & Heyman, 2024; Hu, 2025). Various ICC models have been developed by Chen and Starosta (1996), Byram (1997), Spitzberg and Cupach (1984), and Deardorff (2006). Based on a synthesis of these theories, this research adopts seven dimensions of intercultural communication competence relevant to the use of AI-based digital platforms.

The first dimension is Cultural Awareness, namely the ability to understand different cultural values, norms, traditions, and characteristics as a basis for effective communication (Chen & Starosta, 1996; Deardorff, 2006). The second dimension is Cultural Empathy, namely the ability to understand the perspectives, feelings, and experiences of individuals from other cultures so as to create more meaningful interpersonal relationships (Chen & Starosta, 1996; Deardorff, 2006). The third dimension is Respect for Cultural Diversity, which describes openness, curiosity, and appreciation for cultural diversity as put forward by Byram (1997) and Deardorff (2006). The fourth dimension is Cross-Cultural Communication Confidence, namely self-assurance in interacting with individuals from different cultures without excessive anxiety (Chen & Starosta, 1996). The fifth dimension is Communication Adaptability, which shows the ability to adjust communication style according to the cultural context faced (Deardorff, 2006; Spitzberg & Cupach, 1984). The sixth dimension is Appropriate Language Use Across Cultures, namely the ability to use language, expressions, and communication strategies appropriate to particular cultural norms (Byram, 1997; Spitzberg & Cupach, 1984). The final dimension is Conflict Management in Intercultural Contexts, namely the ability to resolve misunderstandings and communication conflicts arising from cultural differences through negotiation and constructive problem-solving (Spitzberg & Cupach, 1984; Chen & Starosta, 1996). These seven dimensions form the conceptual framework of this study in evaluating how the development of an AI-based digital platform can support the improvement of students' intercultural communication competence. Through AI-based communication recommendations, real-time feedback, cross-cultural communication simulations, and personalized learning, the developed platform is expected to improve students' cultural awareness, empathy, adaptability, self-confidence, and communication effectiveness in a multicultural academic environment.

Based on this background, this study aims to develop an Artificial Intelligence (AI)-based digital platform that supports the improvement of students' intercultural communication competence. This research is expected to make a theoretical contribution to the development of studies on intercultural communication, digital literacy, and educational technology, as well as a practical contribution to universities and technology developers in designing AI platforms that are more inclusive, adaptive, and responsive to communication needs in multicultural academic environments.

METHOD

1. Research Design

This study employed a quantitative pre-experimental design using a one-group pre-test-post-test model to examine changes in university students' intercultural communication competence after participation in learning activities supported by an Artificial Intelligence (AI)-based digital platform. One group of participants was measured before the intervention (pre-test), exposed to the AI-supported learning activities, and measured again after the intervention (post-test). A post-intervention perception questionnaire was also administered to examine students' evaluations of the platform. Because the study did not include a comparison group or random assignment, the design is appropriately classified as pre-experimental rather than a true experimental design, and the findings are interpreted as within-group changes associated with participation in the intervention.

2. Participants and Research Setting

The study involved 50 undergraduate students from Indonesian higher-education settings characterized by cultural, linguistic, ethnic, and regional diversity. This context was considered appropriate because the study focused on intercultural communication competence in a multicultural academic environment. Participants were undergraduate students with experience in cross-cultural academic communication and familiarity with AI-based digital tools used to support academic activities and communication. The same analytic sample (N = 50) contributed to the pre-test, post-test, and post-intervention perception results reported in the study.

3. AI-Based Digital Platform Intervention

The intervention consisted of intercultural communication learning activities supported by an AI-based digital platform. During the activities, students used the platform to obtain communication suggestions, consider alternative ways of expressing messages, interpret culturally situated communication problems, and reflect on the appropriateness of language choices for different interlocutors and contexts. The learning tasks were aligned with the seven dimensions of intercultural communication competence examined in the study: Cultural Awareness, Cultural Empathy, Respect for Cultural Diversity, Cross-Cultural Communication Confidence, Communication Adaptability, Appropriate Language Use Across Cultures, and Conflict Management in Intercultural Contexts. The platform was positioned as a support for communication and reflection rather than as a replacement for students' own judgment.

4. Research Instruments

Two quantitative instruments were used. The first instrument assessed intercultural communication competence before and after the intervention. It was organized around the seven dimensions adopted in the conceptual framework: Cultural Awareness, Cultural Empathy, Respect for Cultural Diversity, Cross-Cultural Communication Confidence, Communication Adaptability, Appropriate Language Use Across Cultures, and Conflict Management in Intercultural Contexts. Responses were recorded on a five-point scale, consistent with the score range reported in the Findings. Higher scores represented stronger intercultural communication competence. The same measurement framework was used at pre-test and post-test so that changes in the seven dimensions could be compared directly.

The second instrument was a post-intervention student perception questionnaire. It examined five aspects reported in the Findings: whether the platform helped students understand cultural differences, whether AI provided useful communication suggestions, whether the platform increased confidence when communicating with people from different cultures, whether the platform was easy to use, and whether students would recommend it to other students. Responses were recorded on a five-point scale, with higher scores indicating more favorable perceptions of the AI-based platform.

5. Research Procedure

Data collection followed three sequential stages. First, participants completed the pre-test to establish their initial intercultural communication competence across the seven dimensions. Second, participants engaged in the AI-supported intercultural communication learning activities. Third, after completion of the intervention, participants completed the post-test using the same competence dimensions. They subsequently completed the student perception questionnaire to evaluate their experience of the AI-based platform. This sequence enabled direct descriptive comparison of students' competence before and after the intervention while also documenting their perceptions of the platform.

6. Data Analysis

The quantitative data were analyzed using descriptive statistics consistent with the results reported in the manuscript. Mean scores were calculated for each of the seven intercultural communication competence dimensions at pre-test and post-test, and the mean differences were examined to identify the direction and magnitude of change following the intervention. An overall mean across the seven dimensions was also used to summarize the general pre-test and post-test pattern. Percentage change was calculated to describe the magnitude of the overall increase. For the student perception questionnaire, mean scores were calculated for each of the five indicators and for the overall perception score. Because the reported results do not include inferential statistics, p-values, confidence intervals, or effect sizes, the observed pre-test-post-test differences are interpreted descriptively rather than as statistically significant causal effects.

7. Ethical Considerations

Participation in the study was voluntary. Before data collection, participants were informed about the purpose and procedures of the research and the use of their responses for academic research. Participant information was treated confidentially, individual responses were not reported in a manner that could identify specific students, and the research data were handled for research purposes only. Participants retained the right to discontinue participation without academic consequences.

FINDINGS AND DISCUSSION

1. Indicators of Intercultural Communication Competence

The findings illustrates the comparison between students' pre-test and post-test scores on intercultural communication competence after using the AI-based digital platform. The findings show a substantial descriptive improvement across all seven indicators. The overall average score increased from 3.13 in the pre-test to 4.44 in the post-test, representing a 41.9% increase with an average gain of 1.31 points. Among the seven indicators, "Respect for Cultural Diversity" achieved the highest post-test average score (4.58), up from 3.36 in the pre-test. This finding indicates that

the AI-based platform effectively fostered students' appreciation and acceptance of various cultural perspectives. Similarly, "Cultural Awareness" increased substantially from 3.18 to 4.47, while "Communication Adaptability" increased from 3.14 to 4.45, indicating an improvement in students' ability to adjust their communication style when interacting with individuals from different cultural backgrounds. In addition, Cultural Empathy showed a substantial increase from 3.10 to 4.42, indicating that students became better able to understand and appreciate the emotions, values, and viewpoints of people from other cultures. Appropriate Language Use Across Cultures also increased from 3.08 to 4.41, indicating that the AI platform provided effective guidance in selecting culturally appropriate expressions and communication strategies.

Although Conflict Management in Intercultural Contexts recorded the lowest post-test score (4.33), this score still showed a fairly substantial increase from 3.01, indicating that students developed better skills in resolving misunderstandings and managing communication conflicts in multicultural environments. Similarly, Confidence in Intercultural Communication increased from 3.05 to 4.39, reflecting greater self-confidence in interacting with people from diverse cultural backgrounds.

Overall, these findings indicate that use of the AI-based digital platform was associated with improvement in students' intercultural communication competence across multiple dimensions—cognitive, affective, and behavioral.

Table 1. Intercultural Communication Competence Score

Indicator (Indicators of Intercultural Communication Competence)	Pre-Test Mean (1 - 5)	Post-Test Mean (1 - 5)
Cultural Awareness	3.18	4.47
Cultural Empathy	3.10	4.42
Respect for Cultural Diversity	3.36	4.58
Cross-Cultural Communication Confidence	3.05	4.39
Communication Adaptability	3.14	4.45
Appropriate Language Use Across Cultures	3.08	4.41
Conflict Management in Intercultural Contexts	3.01	4.33

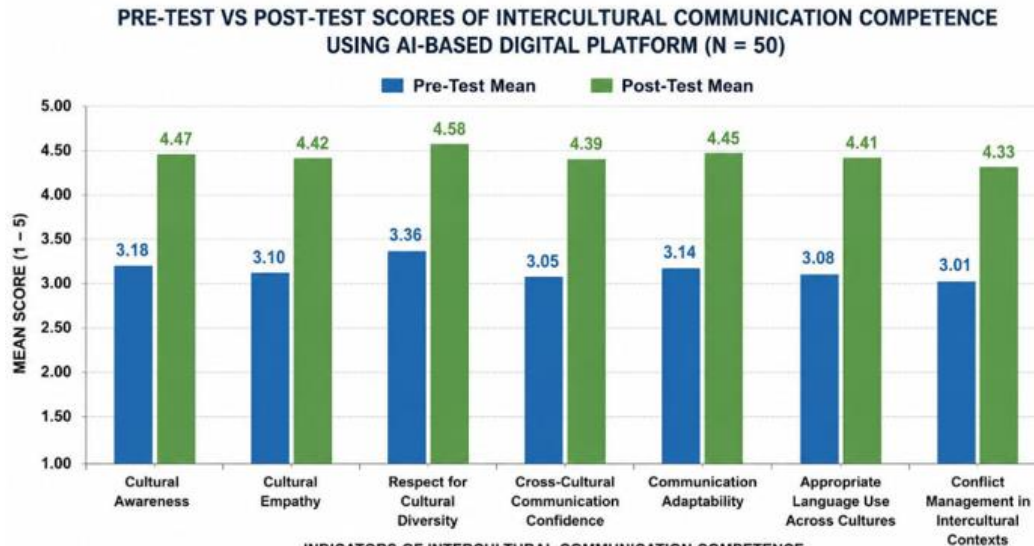


Figure 1. Pre-Test vs. Post-Test of Intercultural Communication Competence Using the AI-Based Digital Platform

2. Student's Perceptions

This section presents students' perceptions of the AI-based digital platform after participating in the intercultural communication learning activity. Overall, the results show a very positive perception, with an overall average score of 4.58, which falls into the Very High category. This finding indicates that students strongly accept the AI-based digital platform as an effective learning tool for supporting intercultural communication. Among the five perception indicators, the statement "I would recommend this platform to other students" obtained the highest average score ($M = 4.67$), indicating a high level of user satisfaction and willingness to promote the platform among their peers. This was followed by the statement "This platform helped me understand cultural differences" ($M = 4.61$), indicating that the platform effectively increased students' awareness and understanding of cultural diversity.

Similarly, students rated the statement "AI provides useful communication suggestions" highly ($M = 4.58$), indicating that the AI-generated recommendations helped them choose appropriate communication strategies in an intercultural context. The statement "This platform is easy to use" also received a very high score ($M = 4.56$), indicating that the platform's interface and features were considered user-friendly and accessible. The lowest average score was recorded for the statement "This platform increased my confidence when communicating with people from different cultures" ($M = 4.49$). Although the lowest among the five indicators, this score still fell into the Very High category, indicating that the platform substantially enhanced students' confidence in intercultural communication. Overall, these findings indicate that students perceive the AI-based digital platform as useful, practical, and effective in facilitating intercultural communication learning.

Table 2. Summary of Students' Perception Scores

No.	Statement	Mean Score (1-5)
1	The platform helps me understand cultural differences.	4.61
2	AI provides useful communication suggestions.	4.58
3	The platform increases my confidence when communicating with people from different cultures.	4.49
4	The platform is easy to use.	4.56
5	I would recommend this platform to other students.	4.67

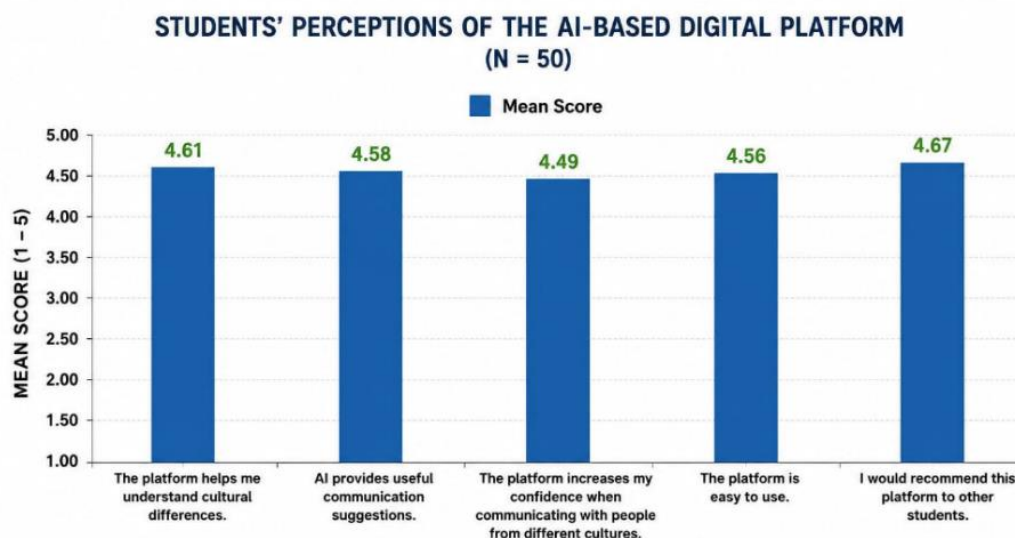


Figure 2. Students' Perceptions of the AI-Based Digital Platform

DISCUSSION

The findings suggest that AI-supported intercultural learning is promising where students need to consider unfamiliar perspectives, evaluate alternative expressions, and prepare for communication across cultural differences. The reported overall competence score increased from 3.13 to 4.44, while the overall perception score of 4.58 indicates a favourable appraisal of the learning experience. These patterns are consistent with an educational environment that students experience as useful and supportive, although they do not independently establish a causal effect or sustained competence development. Deardorff (2006) conceptualises intercultural competence as a developmental relationship among attitudes, knowledge, skills, and appropriate interaction, while Byram (1997) connects language education with interpreting cultural meanings and critically examining perspectives. Read through these frameworks, the findings invite an interpretation of AI as a resource for intercultural preparation whose educational value depends on how learners subsequently exercise judgment in interaction.

The concept of AI as a reflective mediator helps explain this potential contribution. Hancock et al. (2020) describe AI-mediated communication as communication in which an intelligent agent modifies, augments, or generates messages on behalf of a communicator. In the present context, this places AI within the process of deciding what to communicate and how a message might be understood. A sociocultural interpretation is that comparing an initial message

with an AI suggestion can make otherwise implicit choices about tone, directness, and interpersonal positioning available for reflection. However, the production of an improved message is not sufficient evidence that a learner has internalised the reasoning behind it. Molenaar's (2022) account of hybrid human–AI learning provides a useful qualification: assistance should strengthen human learning and agency. The proposed mechanism therefore concerns learners' evaluation of recommendations, rather than the mere availability of automated responses.

The indicator pattern requires a distinction between final standing and change over time. Respect for cultural diversity had the highest reported post-test score, rising from 3.36 to 4.58, but its increase of 1.22 points was smaller than the increase in communication confidence from 3.05 to 4.39. The higher final respect score may partly reflect its higher starting point; it should not be interpreted as the dimension most strongly affected by AI. Its substantive relevance lies in students' favourable orientation towards cultural difference, an important foundation for further learning. Nevertheless, endorsing diversity does not necessarily demonstrate the ability to question a stereotype or interpret an ambiguous encounter. Byram's (1997) emphasis on critical cultural awareness and Hu's (2025) approach to learning critical AI literacy through experience, analysis, and reflection suggest that respectful attitudes become educationally consequential when learners also examine how cultural representations are produced and whose perspectives they privilege. This distinction matters because culturally fluent AI output may still offer a selective account of social life. Tao et al. (2024) found that the values expressed by the language models they evaluated resembled those of English-speaking and Protestant European countries, although cultural prompting improved alignment for many settings. Their findings caution against treating a model's default advice as culturally universal. Bender et al. (2021) similarly identify risks associated with the social biases and uneven representation embedded in large language-model training data. Applied to the present study, these concerns mean that stronger cultural-awareness scores cannot establish that the advice students received was accurate or free from stereotyping. A productive learning activity would require students to compare an AI explanation with accounts from relevant interlocutors and consider alternative explanations involving institutional roles, relationships, or individual preferences. Such comparison would make cultural difference an object of inquiry without reducing individuals to fixed group characteristics.

The increases in communication adaptability, from 3.14 to 4.45, and appropriate language use, from 3.08 to 4.41, suggest that students found support particularly relevant to the practical formulation of messages. Kohnke et al. (2023) discuss conversational practice, feedback, and language support among the educational affordances of generative AI. Song and Song (2023), in an intervention with Chinese EFL learners, reported improvements in academic writing and motivation associated with AI-assisted instruction. That evidence offers a useful comparison, although writing achievement and intercultural appropriateness remain different outcomes. The present findings extend the discussion towards choices about audience, relationship, and communicative purpose. For example, alternative formulations of a request could help a learner consider how politeness and directness change across situations. This remains a proposed explanation, because the reported scores do not show which recommendations students accepted, modified, or rejected, or how communication partners evaluated the resulting messages.

The social effects of these language choices also deserve attention. Hohenstein et al. (2023) showed experimentally that algorithmic reply suggestions could increase positive emotional language and favourable interpersonal evaluations, while suspicion that a partner was using AI could worsen evaluations. Their study concerned smart replies rather than intercultural instruction,

but it demonstrates that linguistic assistance can influence relationships as well as message efficiency. Accordingly, the usefulness rating of 4.58 for AI communication suggestions in the present study should be interpreted alongside questions of voice and relational accountability. A polished message may facilitate an exchange, yet its educational value depends on whether it represents the learner's intended meaning and responds appropriately to the recipient. Students therefore need opportunities to explain their revisions and consider the interpersonal consequences of wording, rather than assuming that fluent or courteous language will always be received favourably.

The increase in cultural empathy from 3.10 to 4.42 is encouraging, but it warrants a similarly bounded interpretation. AI-generated alternatives may invite learners to imagine how a message could be experienced by someone with different expectations. This creates a possible entry point for perspective-taking; it does not demonstrate that the system understands the interlocutor or that learners have developed enduring empathetic behaviour. Deardorff (2006) distinguishes internal orientations from their expression in effective and appropriate interaction. The present score pattern is compatible with increased perceived readiness to consider another perspective, but stronger evidence would involve students recognising an interlocutor's concern, revising an initial interpretation, or checking understanding during an actual exchange. Thus, empathy should remain an interpersonal achievement to be examined through human responses, with AI providing material for reflection rather than authoritative accounts of other people's feelings.

Conflict management recorded the lowest post-test competence score, increasing from 3.01 to 4.33. Although the difference between this and other final scores is descriptive, the pattern identifies a useful area for further pedagogical attention. Intercultural conflict involves competing goals and concerns about identity and relationships, so an appropriate sentence alone may not resolve the underlying disagreement. Ting-Toomey and Kurogi's (1998) face-negotiation framework situates competence in the relationship among knowledge, mindfulness, and interaction skills. This helps explain why recommendations for polite wording may offer only partial preparation for managing conflict. Future learning tasks could require students to negotiate incompatible expectations, recognise when a proposed response threatens another person's social standing, and adapt after receiving an unexpected reply. These activities are implications of the findings, rather than evidence that particular conflict-resolution processes were observed in this study.

Communication confidence presents a related issue of transfer. It showed the largest increase among the reported competence indicators, yet the perception item concerning increased confidence received the lowest rating within its own set of items, at 4.49. These are separate measures and should not be directly equated; together, they suggest that favourable experiences with AI can coexist with a continuing need for interpersonal practice. O'Dowd (2021) positions virtual exchange as a means of engaging learners in structured collaboration across contexts. Building on that approach, AI-supported preparation could be followed by dialogue with peers from different linguistic or regional backgrounds and reflection on the responses actually received. This would allow learners to test their expectations against another person's interpretation. Confidence would then be assessed in relation to participation, clarification, and repair, rather than inferred solely from satisfaction with simulated practice.

The positive perception scores help explain the platform's appeal, but they should remain analytically separate from competence outcomes. High ratings for usefulness and ease of use are consistent with the constructs in Davis's (1989) Technology Acceptance Model. However, the

present descriptive ratings do not test the relationships specified by that model, and the willingness-to-recommend score of 4.67 does not establish sustained adoption. Chan and Hu (2023) similarly found generally positive university-student views of generative AI alongside concerns about accuracy, privacy, and personal development. Johnston et al. (2024) further showed that students differentiated between acceptable forms of assistance and the use of AI to produce an entire assignment. These comparisons suggest that acceptance can be conditional and task-specific. The present satisfaction pattern supports the feasibility of further implementation, while leaving open whether enthusiasm leads to deeper reflection, independent performance, or continued use over time.

Critical AI literacy is therefore central to the relationship between assistance and intercultural learning. Long and Magerko (2020) frame AI literacy in terms of competencies needed to interact with and critically evaluate AI, while Ng et al. (2021) integrate understanding, application, evaluation, and ethical considerations. In intercultural communication, these competencies include recognising that a plausible explanation of another person's behaviour may be incomplete and identifying what contextual information is missing. Hu (2025) makes experience, analysis, and reflection central to examining AI and stereotypes. An appropriate classroom application would ask students to compare several suggested responses, identify assumptions about the recipient, and justify a final choice with reference to the actual relationship and purpose. The present findings make such instruction relevant, but they do not demonstrate that participants possessed these critical competencies. AI literacy should therefore be assessed explicitly rather than inferred from successful platform use.

The distinction between assistance and independent competence also raises the question of reliance. Zhai et al. (2024) identify concerns about how over-reliance on AI dialogue systems can affect students' cognitive engagement and abilities. This literature does not show that dependence occurred among the present participants, but it identifies a risk that favourable ratings alone cannot rule out. If students repeatedly accept suggested messages without examining them, improved task completion may coexist with limited development of their own communicative reasoning. Consistent with Molenaar's (2022) augmentation perspective, scaffolding could gradually shift responsibility back to learners: they might first explain an AI-assisted revision and later respond to a comparable situation without assistance. Comparing these performances would clarify whether the technology supports learning that remains available when the tool is absent.

The Indonesian setting makes linguistic and cultural representation particularly relevant to implementation. The study describes participants with diverse regional, ethnic, and linguistic backgrounds, but it does not report outcomes separately across these groups. Joshi et al. (2020) document substantial inequalities in the resources and research attention available to the world's languages, challenging assumptions that language technologies serve all linguistic communities equally. Together with Bender et al.'s (2021) concerns about representation in training data, this suggests a need to examine whose communicative practices an AI-supported platform recognises. Future evaluation should include Indonesian, relevant regional languages, and multilingual exchanges, with judgments from speakers familiar with the contexts involved. The aim should be to support contextually appropriate choices while allowing variation within communities, rather than measuring success by convergence towards a single standard of expression.

These findings imply that universities should integrate AI-supported communication into a deliberately designed learning sequence. Students could begin by analysing a communication problem, consult AI for alternative formulations, discuss the cultural assumptions in its suggestions, and then evaluate their chosen response through peer or interlocutor feedback. Chan's

(2023) AI policy framework connects pedagogical decisions with governance, infrastructure, and training, while Miao and Holmes (2023) emphasise human agency, equitable access, privacy, and pedagogical validation. For this application, those principles imply clear expectations about assistance, protection of private messages used as examples, and access arrangements that allow students to participate equitably. Assessment should examine the reasons behind a communicative choice, the ability to recognise uncertainty, and the response to another person's feedback. Such measures would better address the study's intercultural aims than evaluating only the fluency of an AI-assisted product.

Future research should strengthen the experimental evidence by connecting the reported outcomes with observable communication processes and a more rigorous comparison design. Following Deardorff's (2006) emphasis on assessing intercultural competence through multiple forms of evidence, researchers could combine validated quantitative measures with interaction records and feedback from communication partners. A particularly informative design would compare a group receiving AI-supported instruction with a comparable group receiving conventional instruction, while also examining independent performance, AI-assisted performance, and subsequent performance after assistance is withdrawn. O'Dowd's (2021) work on virtual exchange offers a basis for examining transfer in authentic collaborative settings, while Tao et al. (2024) highlights the need to evaluate cultural alignment rather than assume it. Platform versions, prompts, languages, learning activities, exposure duration, and fidelity of implementation should be documented so that differences can be interpreted and replicated. Such research would test the central proposition emerging from this study: AI supports intercultural learning when its recommendations become resources for accountable human judgment, reflection, and interaction.

The study's contribution is therefore best understood as identifying a promising intersection between students' favourable experiences of AI assistance and the multidimensional demands of intercultural communication. The findings draw attention to cultural awareness, language adaptation, confidence, and the continuing challenge of conflict management, while the available evidence leaves the durability and mechanisms of change unresolved. Bringing Hancock et al.'s (2020) account of AI-mediated communication into conversation with Molenaar's (2022) emphasis on human agency suggests a pedagogical direction in which learners remain responsible for interpreting situations and deciding how to respond. The value of the platform ultimately lies in whether it helps students make better-informed communicative choices and evaluate their consequences in relationships with other people.

CONCLUSION

This study shows that the use of an Artificial Intelligence (AI)-based digital platform can help students deal with intercultural communication differences while also supporting the development of writing skills. AI is not only used to improve language and generate text, but also helps students understand cultural norms and ethics, choose appropriate words, anticipate misunderstandings, and increase readiness and confidence in communication. These findings confirm that AI can function as a reflective mediator that helps students understand differences and consider various communication options. Conceptually, this study reinforces Sociocultural Theory by showing that AI serves as a mediating tool in the learning process and social interaction. However, AI cannot replace human empathy, direct experience, and critical judgment. Therefore, the use of AI needs to be directed toward critical, ethical, and culturally sensitive use. The implication is that universities need to integrate AI literacy and intercultural communication

competence into learning. AI can be utilized to support the writing process, language reflection, and communication simulation, but students must remain the primary decision-makers.

This study has limitations regarding the relatively limited context and characteristics of the participants, and has not yet explored intercultural communication experiences in depth through direct interviews or observation. Future research is advised to expand the population and research context and to use in-depth interviews, focus group discussions, or a mixed-methods approach to obtain a more comprehensive understanding. Ultimately, this study confirms that AI should be positioned not as a replacement for human ability, but as a tool that strengthens students' ability to think critically, write contextually, and communicate adaptively amid cultural diversity.

REFERENCES

- Alharbi, W. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed methods intervention study. *Smart Learning Environments*, 11, Article 12. <https://doi.org/10.1186/s40561-024-00295-9>
- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 610–623). Association for Computing Machinery. <https://doi.org/10.1145/3442188.3445922>
- Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.
- Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Multilingual Matters. <https://books.google.com/books?id=0vfq8JJWhTsC>
- Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20, Article 38. <https://doi.org/10.1186/s41239-023-00408-3>
- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20, Article 43. <https://doi.org/10.1186/s41239-023-00411-8>
- Chen, G. M., & Starosta, W. J. (1996). Intercultural communication competence: A synthesis. *Annals of the International Communication Association*, 19(1), 353–383.
- Chen, G. M., & Starosta, W. J. (2000). The development and validation of the Intercultural Sensitivity Scale. *Human Communication*, 3, 1–15.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, 10(3), 241–266. <https://doi.org/10.1177/1028315306287002>
- Deardorff, D. K. (2009). *The SAGE Handbook of Intercultural Competence*. Sage.
- Dwivedi, Y. K., Kshetri, N., Hughes, L., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Farrell, O., & Brunton, J. (2024). A balancing act: Exploring student perspectives on generative artificial intelligence and academic writing. *Computers and Education: Artificial Intelligence*, 6, 100214 <https://doi.org/10.1016/j.caeai.2024.100214>

- Grassini, S. (2023). Shaping the future of education: Exploring the potential and consequences of AI and ChatGPT in educational settings. *Education Sciences*, 13(7), 692. <https://doi.org/10.3390/educsci13070692>
- Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication*, 25(1), 89–100. <https://doi.org/10.1093/jcmc/zmz022>
- Hohenstein, J., Kizilcec, R. F., DiFranzo, D., Aghajari, Z., Mieczkowski, H., Levy, K., Naaman, M., Hancock, J., & Jung, M. F. (2023). Artificial intelligence in communication impacts language and social relationships. *Scientific Reports*, 13, Article 5487. <https://doi.org/10.1038/s41598-023-30938-9>
- Hu, Y. (2025). Generative AI, communication, and stereotypes: Learning critical AI literacy through experience, analysis, and reflection. *Communication Teacher*, 39(1), 6–12. <https://doi.org/10.1080/17404622.2024.2397065>
- Johnston, H., Wells, R. F., Shanks, E. M., Boey, T., & Parsons, B. N. (2024). Student perspectives on the use of generative artificial intelligence technologies in higher education. *International Journal for Educational Integrity*, 20, Article 2. <https://doi.org/10.1007/s40979-024-00149-4>
- Joshi, P., Santy, S., Budhiraja, A., Bali, K., & Choudhury, M. (2020). The state and fate of linguistic diversity and inclusion in the NLP world. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics* (pp. 6282–6293). Association for Computational Linguistics. <https://doi.org/10.18653/v1/2020.acl-main.560>
- Kasneci, E., Sessler, K., Küchemann, S., et al. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, 54(2), 537–550. <https://doi.org/10.1177/00336882231162868>
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–16). Association for Computing Machinery. <https://doi.org/10.1145/3313831.3376727>
- Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO. <https://doi.org/10.54675/EWZM9535>
- Molenaar, I. (2022). Towards hybrid human–AI learning technologies. *European Journal of Education*, 57(4), 632–645. <https://doi.org/10.1111/ejed.12527>
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, Article 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- O'Dowd, R. (2021). Virtual exchange: Moving forward into the next decade. *Computer Assisted Language Learning*, 34(3), 209–224. <https://doi.org/10.1080/09588221.2021.1902201>
- Passantino, F. (2024). AI-powered communication for intercultural education. *Intercultural Education*, 35(1), 104–110. <https://doi.org/10.1080/14675986.2024.2307701>
- Qin, X. (2024). Evaluating intercultural learning materials from the RICH-Ed project through a non-essentialist perspective: Chinese university students' and instructors' perceptions. *Asia-Pacific Journal of Teacher Education*, 53(1), 17–49. <https://doi.org/10.1080/1359866X.2024.2411598>
- Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology*, 14, Article 1260843. <https://doi.org/10.3389/fpsyg.2023.1260843>

- Spitzberg, B. H. (2000). A model of intercultural communication competence. In *Intercultural Communication: A Reader* (9th ed., pp. 375–387). Wadsworth.
<https://doi.org/10.1080/23808985.1996.11678935>
- Spitzberg, B. H., & Cupach, W. R. (1984). *Interpersonal Communication Competence*. Sage.
- Tao, Y., Viberg, O., Baker, R. S., & Kizilcec, R. F. (2024). Cultural bias and cultural alignment of large language models. *PNAS Nexus*, 3(9), pgae346.
<https://doi.org/10.1093/pnasnexus/pgae346>
- Ting-Toomey, S., & Kurogi, A. (1998). Facework competence in intercultural conflict: An updated face-negotiation theory. *International Journal of Intercultural Relations*, 22(2), 187–225.
[https://doi.org/10.1016/S0147-1767\(98\)00004-2](https://doi.org/10.1016/S0147-1767(98)00004-2)
- Waltzer, T., Pilegard, C., & Heyman, G. D. (2024). Can you spot the bot? Identifying AI-generated writing in college essays. *International Journal for Educational Integrity*, 20, Article 11.
- Zhai, C., Wibowo, S., & Li, L. D. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: A systematic review. *Smart Learning Environments*, 11, Article 28. <https://doi.org/10.1186/s40561-024-00316-7>