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ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION: INNOVATION AND CHALLENGES IN TEACHING THE INDONESIAN LANGUAGE TO FOREIGN SPEAKERS

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ABSTRACT: This study examines Artificial Intelligence integration in BIPA programs from learner and instructor perspectives. We surveyed 25 students across 18 nationalities and interviewed 3 teachers of Indonesian language. A striking pattern emerged: everyone knew about AI, yet only 20% turned to it when facing difficulties, while 80% asked their teachers instead. Language barriers partly explain this reluctance, as most AI tools operate in English, forcing learners to navigate a third language for Indonesian help. Trust proved equally important—students doubted whether AI responses were accurate or culturally appropriate, preferring teachers who provided validated answers without requiring verification. Teachers showed a similarly cautious adoption, deploying AI mainly for administrative tasks like collecting assignments rather than core instruction.

When asked whether AI might replace teachers, nearly three-quarters rejected the possibility. Nobody predicted definitive displacement. Both students and teachers conceptualized AI as applicable for specific tasks—checking grammar, looking up words—but insufficient for the cultural understanding and adaptive feedback that language learning demands. These findings complicate predictions about automation displacing teachers in education.

KEYWORDS: Artificial Intelligence; BIPA; innovation; students; education

INTRODUCTION

Bahasa Indonesia bagi Penutur Asing (hereafter, will be abbreviated "BIPA"), or Indonesian Language for Foreign Speakers, encompasses instructional programs designed to teach Indonesian as a foreign language to non-native speakers. Beyond its primary pedagogical function, BIPA serves as an instrument of linguistic diplomacy, enabling the Indonesian government to advance national interests through language and cultural promotion. This strategic positioning aligns with broader conceptualizations of language education as soft power, where language programs facilitate international relations, economic partnerships, and cultural exchange (Adnyana & Siwantara, 2023). BIPA programs thus serve dual objectives: systematic language instruction that develops communicative competence while simultaneously introducing participants to Indonesian cultural practices.

BIPA's institutional presence has expanded substantially, with current enrollment reaching approximately 142,484 learners across 428 institutions in 52 countries. This distribution spans diverse geographic regions: Southeast Asia (145 institutions), Asia-Pacific and Africa (186 institutions), and the Americas and Europe (97 institutions) (Fithriana & Karamina, 2024). Indonesian currently ranks as the third most studied language in Asia after Mandarin and Japanese, reflecting growing regional interest in Southeast Asian languages driven by economic integration and cultural exchange within ASEAN frameworks (Widianto & Pusse, 2025). The language has achieved particular prominence in Vietnam, where it functions as the second most studied foreign language, and in Australia, where it ranks fourth in popularity—positions that reflect both geographic proximity and bilateral economic ties.

Despite quantitative expansion, BIPA programs confront persistent quality challenges that constrain their effectiveness and international credibility. First, instructional materials frequently fail to address diverse learner needs, proficiency levels, and cultural backgrounds, resulting in pedagogical misalignment between curriculum design and learner expectations (Pratiwi et al., 2022). Second, teacher preparation remains inconsistent with the competency standards outlined in Indonesia's National Qualifications Framework (in Indonesian language is called "Kerangka Kualifikasi Nasional Indonesia" or KKNI), indicating gaps in both pre-service education and professional development opportunities (Nasution, 2025). This competency gap is particularly evident in teachers' capacity to design curriculum addressing the communicative competencies that BIPA instruction purports to develop. Third, the lack of standardized, culturally responsive teaching materials and assessment instruments raises concerns about the reliability of BIPA

certification processes across different institutional contexts. These systemic challenges necessitate strategic interventions in curriculum development, teacher education, and assessment design to ensure BIPA's continued growth and international recognition.

The COVID-19 pandemic fundamentally disrupted BIPA's delivery infrastructure. Between 2020 and 2022, the Ministry of Education and Culture suspended its direct teacher deployment program, which had been sending instructors to target countries since 2015. This suspension necessitated rapid pedagogical adaptation as face-to-face instruction shifted to distance learning modalities mediated through digital platforms and videoconferencing technologies (Aldiyah, 2021). The pandemic accelerated broader transformations in educational technology adoption, fundamentally altering learning experiences, instructional design, and teacher-student interactions (Miko & Nasution, 2023). For BIPA specifically, this transition raised critical questions about whether online platforms could effectively replicate the cultural immersion and pragmatic language practice traditionally embedded in classroom instruction. The forced digitalization exposed significant disparities in technological infrastructure, digital literacy, and internet access across BIPA's geographically diverse learner population.

Within this accelerated digital transformation, artificial intelligence (AI) emerged as a particularly consequential technology for language education. AI applications now span multiple pedagogical functions: automated translation (Google Translate, DeepL), pronunciation feedback (ELSA Speak), writing assistance (Grammarly, QuillBot), and conversational practice through chatbots (ChatGPT, Gemini). Research suggests AI-enhanced tools can increase learner engagement and comprehension; for instance, gamified platforms like Quizizz have demonstrated effectiveness in improving reading comprehension through interactive assessment formats (Adnan & Adi, 2024; Alnasib, 2023; Kasih et al., 2024) . However, AI integration generates substantive concerns about pedagogical validity and learning authenticity. AI-generated content challenges traditional literacy practices by obscuring authorship and potentially diminishing critical reading skills, as learners engage with texts divorced from human communicative intent (Kasih et al., 2025; Saddhono et al., 2024). In language learning contexts specifically, overreliance on AI translation and writing tools may impede genuine language acquisition by enabling learners to produce output without developing underlying competence (Chen et al., 2023). These tensions between efficiency and educational integrity require careful examination within BIPA contexts, where cultural mediation and pragmatic competence constitute core learning objectives beyond mere linguistic accuracy.

Contemporary BIPA instruction increasingly incorporates digital technologies and AI-powered tools across the four language skills. For listening comprehension, instructors utilize video-sharing platforms (YouTube, educational channels) to expose learners to authentic Indonesian discourse in diverse contexts (Iskandar et al., 2023). Speaking practice benefits from AI-driven

pronunciation applications (ELSA Speak, Talkpal AI) that provide immediate phonetic feedback—a function particularly valuable in settings lacking native-speaker interaction opportunities. Writing instruction employs grammar-checking software (Grammarly, QuillBot) and translation tools (Google Translate, DeepL) to support text production, while reading comprehension increasingly integrates interactive digital platforms to enhance learner engagement (Faizin et al., 2023; Septriani & Rustandi, 2023). Large language models such as ChatGPT and Google Gemini now serve as supplementary resources for grammar explanations and contextualized language queries. This technological integration addresses persistent challenges in online BIPA delivery, where physical distance can create monotonous instructional environments and limit spontaneous teacher-student interaction. However, the pedagogical effectiveness of these tools remains contingent on thoughtful integration rather than mere technological adoption.

A growing gap has emerged between technological capability and teacher readiness in language education. Learners routinely use AI tools for instant translation, automated homework solutions, and image-based problem recognition (Attia & Elsawy, 2024; Cerovac & Keane, 2024; Ferk Savec & Jedrinović, 2024). Many BIPA instructors, however, lack similar digital skills (Diktiristek, 2024), creating instructional imbalance. Students access immediate answers through applications, while teachers struggle to design assignments that promote genuine language processing rather than technological shortcuts. The gap extends beyond individual skills to institutional resources, as premium AI applications with robust features remain too expensive for many programs, while free alternatives offer limited teaching value. These conditions risk reproducing existing inequalities between well-resourced institutions that integrate sophisticated technologies and underfunded programs that continue traditional methods without planned adaptation. The spread of AI assistance raises serious concerns about learning authenticity and educational integrity. When students prioritize efficiency over understanding, the learning purpose of language exercises disappears (Diktiristek, 2024). In language learning specifically, overreliance on translation tools may enable communication tasks without developing internalized grammar knowledge. Students produce target-language output that appears skilled but reflects AI capabilities rather than learner ability, challenging fundamental assumptions about assessment validity.

AI presents a paradox for BIPA programs that resists simple acceptance or rejection. On one hand, AI tools extend learning opportunities beyond classroom hours, provide immediate feedback on pronunciation and grammar, and enable self-paced study—particularly valuable for geographically scattered learners with limited access to native speakers (Nasution et al., 2024). On the other hand, legitimate concerns persist: instructor replacement remains possible, learner dependency threatens independent skill development, and human interaction central to practical language use may decline. Language learning inherently involves cultural understanding, meaning negotiation, and flexible response to communication breakdowns (Nasution, 2019, 2022). Current AI systems poorly

replicate these dimensions. Whether AI functions as a teaching supplement or instructional replacement depends on implementation decisions: how teachers integrate these tools, what learning goals guide their use, and whether programs prioritize efficiency over educational depth.

Despite extensive speculation about AI's impact on education, empirical evidence from non-English language learning contexts remains limited. Existing research has not adequately examined how AI adoption intersects with pedagogical quality concerns in BIPA contexts, focusing instead on AI capabilities rather than stakeholder perceptions and actual adoption patterns. We investigate three research questions: (1) How do BIPA learners and instructors perceive AI's utility compared to traditional instruction? (2) To what extent have teachers integrated AI technologies into their instructional practice? (3) What factors enable or constrain AI adoption in BIPA contexts? Drawing on surveys from 25 international BIPA students and interviews with three experienced instructors, this study documents AI's current role in BIPA programs empirically rather than speculatively, examining the gap between technological availability and actual pedagogical implementation.

These findings matter for multiple stakeholders. Policymakers need evidence to justify investments in teacher training and digital infrastructure. Instructors require clarity about when AI genuinely enhances learning versus when human judgment remains irreplaceable. Program administrators must make decisions about curriculum design and delivery modes with limited empirical guidance. More broadly, this study addresses a fundamental question about language education: can programs absorb rapidly evolving technologies without losing sight of what makes human interaction central to foreign language acquisition? By examining both learner and instructor perspectives within a non-English language context, this research contributes to understanding AI integration in language education beyond dominant Anglophone frameworks.

METHODOLOGY

Research Design

This study employed a convergent mixed methods design to examine AI integration in BIPA instruction from multiple stakeholder perspectives (Creswell, 2018). This approach allowed us to triangulate learner perceptions with instructor experiences, combining breadth (usage patterns across 25 learners) with depth (detailed instructor perspectives). Integration occurred through comparison matrices mapping survey findings to interview themes, examining areas of convergence and divergence across data sources (Pane et al., 2022). Integration occurred at three points: during data collection (preliminary survey patterns informed interview follow-up questions), during analysis (comparison matrix mapping), and during interpretation (examining convergence and divergence across data sources).

Participants

Twenty-five BIPA learners from 18 nationalities (Europe, Asia, North America, Africa, Oceania) participated in the survey. Proficiency levels ranged

from A1 (beginner) to C2 (advanced) based on the Common European Framework: A1 (n=7), A2 (n=12), B1 (n=2), B2 (n=3), C2 (n=1). Participants were enrolled in three program types: domestic (studying in Indonesia), international (distance learning), and embassy-affiliated programs. Three BIPA instructors participated in semi-structured interviews, purposively selected to represent diverse teaching contexts: face-to-face (Instructor 1, 5 years' experience), online (Instructor 2, 8 years), and hybrid modalities (Instructor 3, 7 years). All held BIPA certification and relevant qualifications in Indonesian language education. We employed purposive convenience sampling through accessible BIPA programs where researchers had institutional contacts. While this limits generalizability, the approach proved appropriate for exploratory research examining preliminary patterns. The diversity in learner proficiency levels and nationalities, plus instructor teaching contexts, enabled examination of how AI perceptions vary across different stakeholder positions (Patton, 2015).

Instrumentation

We operationalized "AI" broadly to include computational tools learners and teachers perceive as artificially intelligent: machine translation (Google Translate, DeepL), grammar assistants (Grammarly, QuillBot), large language models (ChatGPT, Gemini), pronunciation apps (ELSA Speak), and automated learning platforms (Quizizz). We used this umbrella term because participant perceptions, rather than technical classifications, constituted our research focus (Dörnyei & Taguchi, 2015).

The student survey contained 10 items examining three domains: (1) AI familiarity and usage frequency (items 1-3), (2) instructional preferences and help-seeking behaviors (items 4-6), and (3) AI impact perceptions including replacement concerns and confidence using AI (items 7-10). Response formats included dichotomous choices (yes/no), 5-point frequency scales (never to very often), and preference selections. Questions were presented in English to avoid confounding language proficiency with survey comprehension. The complete survey instrument appears in Appendix A.

The survey demonstrated face validity through review by two experienced BIPA instructors but was not psychometrically validated due to the exploratory pilot nature and small sample size. This constitutes a limitation; findings represent preliminary insights rather than validated measures.

Instructor interviews followed a semi-structured protocol exploring: current AI usage in teaching, perceived benefits and limitations for different language skills, observations of student AI usage, and concerns about AI's impact on BIPA instruction. Sample prompts included: "How do you currently use AI or digital tools in your BIPA teaching?" and "What have you noticed about how your students use AI when learning Indonesian?" The semi-structured format allowed pursuit of emerging themes while maintaining consistency across interviews

We employed purposive convenience sampling to recruit participants from accessible BIPA programs. Student participants were recruited through announcements in three BIPA programs where researchers had institutional

access. While convenience sampling limits generalizability, this approach proved necessary given the exploratory nature of the study and the absence of comprehensive BIPA learner databases. We sought diversity in proficiency levels and nationalities to capture varied perspectives on AI usage, as learners at different stages and from different linguistic backgrounds might perceive AI tools differently. The distribution of proficiency levels reflects typical BIPA enrolment patterns, with concentration at beginner (A1-A2) levels. Instructor participants were purposively selected to represent diverse teaching contexts (face-to-face, online, and hybrid modalities), enabling exploration of how teaching context might influence AI adoption patterns. This sampling strategy acknowledges limitations for generalizability but provides rich preliminary data appropriate for exploratory research

Procedures

The online survey was administered via Google Forms between April 13-30, 2025, distributed through BIPA program coordinators. Participation was voluntary with no incentives offered. We received 25 complete responses. Three instructor interviews were conducted April 21-23, 2025, lasting 45-60 minutes each. Two occurred face-to-face at instructors' workplaces; one via video conference. Interviews were conducted in Indonesian, audio-recorded with consent, and transcribed verbatim. All participants provided informed consent. Students completed online consent forms before accessing the survey; instructors provided recorded verbal consent. Responses were anonymized using initials (students) or pseudonyms (instructors: IM, SR, HS). Data were stored on password-protected devices accessible only to the research team.

Data Analysis

Survey data were analyzed using descriptive statistics (frequencies, percentages) in Microsoft Excel (Miles & Huberman, 1984; Miles et al., 2014) We examined response patterns across proficiency levels and nationalities through cross-tabulation but did not conduct inferential statistical tests due to small sample size. Interview data were analyzed using thematic analysis (Braun & Clarke, 2006). After familiarizing ourselves with transcripts through repeated reading, we generated initial codes identifying specific AI tools mentioned, teaching strategies described, and concerns expressed. Codes were then grouped into broader themes reflecting patterns across participants (Kvale & Brinkmann, 2015). Two researchers independently coded all three transcripts, achieving 87% inter-coder agreement across 156 coded segments. The 13% of disagreements were resolved through discussion until consensus emerged.

We integrated quantitative and qualitative findings during interpretation by creating comparison matrices mapping survey results to interview themes (DeJonckheere et al., 2024). Convergent findings (e.g., both students and teachers viewing AI as supplement rather than replacement) were treated as robust evidence supported by multiple sources. We explored possible explanations for any divergences, though these were minimal. This integration strategy provided richer understanding than either method alone could offer.

We acknowledge significant limitations. The small sample (25 students, 3 instructors) and convenience sampling constrain generalizability. The survey lacked validated psychometric properties. Self-report data may not reflect actual AI usage behavior. The cross-sectional design captures perceptions at a single time point in a rapidly evolving technological landscape. These constraints require cautious interpretation but do not invalidate the study's contribution as exploratory research generating hypotheses for future investigation with larger, more representative samples.

FINDINGS

This section presents findings from surveys of 25 BIPA learners and interviews with 3 BIPA instructors, organized according to our three research questions. Table 1 summarizes key patterns in student survey responses, while Figures 1-3 illustrate critical findings about help-seeking behavior, teacher innovation, and replacement perceptions. Complete participant demographics and individual responses across all 10 survey items appear in Appendix A.

Variable	**n (%)**
AI Awareness	
Familiar with AI	25 (100%)
AI Usage Frequency for Indonesian Learning	
Very often	7 (28%)
Often	6 (24%)
Sometimes	8 (32%)
Seldom	3 (12%)
Never	1 (4%)
Preferred Learning Mode	
Study with real teacher only	12 (48%)
Combination of teacher + AI	13 (52%)
Study with AI only	0 (0%)
Help-Seeking When Encountering Difficulties	
Ask teacher	20 (80%)
Look for solutions through AI	5 (20%)
Teacher Uses AI in Classroom	
Yes	4 (16%)
Sometimes	11 (44%)
No	10 (40%)
AI Will Replace Teachers in Language Learning	
No	18 (72%)
Maybe	7 (28%)
Yes	0 (0%)
Confidence Using AI for Real-World Communication	
Yes, I dare	14 (56%)
No, I don't dare	11 (44%)
Can Study Without Teacher Present	
I am sure I can use AI	4 (16%)
I am not sure; I need a real teacher	18 (72%)

I can study with a teacher who uses AI	3 (12%)

Table 1. Summary of Student Survey Responses (N=25)

AI Awareness and Usage Patterns (RQ1)

All 25 participants reported familiarity with artificial intelligence, indicating universal awareness among this BIPA learner population. However, frequency of actual AI use varied considerably. Seven participants (28%) reported using AI “very often” for Indonesian learning, 6 (24%) “often”, 8 (32%) “sometimes”, 3 (12%) “seldom”, and 1 (4%) “never”. When encountering learning difficulties, 20 of 25 participants (80%) reported asking their teachers directly, while 5 participants (20%) sought solutions through AI tools such as the internet, ChatGPT, or online dictionaries. Figure 1 displays this pronounced preference for human guidance over AI assistance.

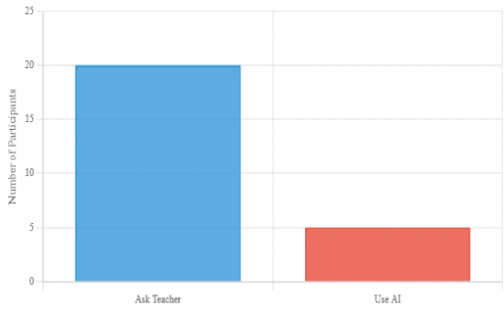

Figure 1. Help-seeking behavior when encountering difficulties in Indonesian learning (N=25)

Interview data provided context for this pattern. Informant 1 explained: “Asking teachers is more practical, and the learning process with AI takes longer. AI is also mostly available in English.” Informant 2 noted: “They consider learning directly with teachers to be more creative and effective in improving their Indonesian language skills, as foreigners are very critical.”

When asked about preferred learning modes, responses split evenly: 12 participants (48%) preferred learning exclusively with teachers, while 13 (52%) preferred teacher instruction supplemented by AI tools. Zero participants selected AI-only instruction as their preferred mode.

Participants reported using various AI applications for Indonesian learning. Among those who indicated AI use (item 3), applications mentioned included Google Translate, online dictionaries, ChatGPT, and other translation tools. Usage patterns varied across the four language skills, with some participants reporting AI use “sometimes” for reading, writing, listening, and speaking (item 9), while others reported no AI use across skills.

Teacher AI Integration in Instructional Practice (RQ2)

Student perceptions of teacher AI usage revealed limited integration of these technologies into classroom practice. When asked whether their BIPA

teachers used AI to deliver or explain material, 4 participants (16%) answered "yes," 10 (40%) responded "no," and 11 (44%) indicated "sometimes."

Figure 2 displays this distribution.

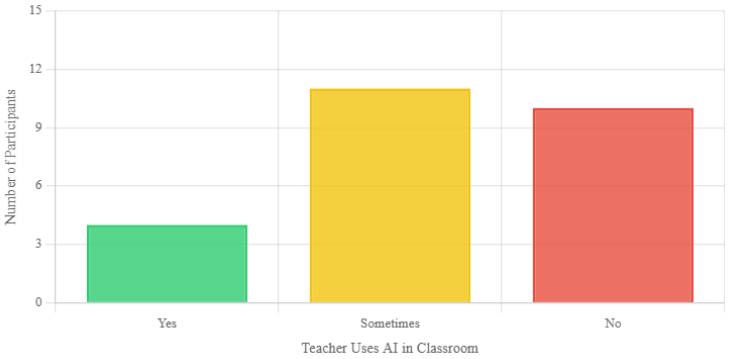

Figure 2. Student perceptions of teacher AI use in delivering or explaining classroom materials (N=25)

Instructor interviews provided insight into actual AI integration practices. Informant 3 described current usage: "As far as I know, other BIPA teachers and I use AI mainly in teaching BIPA online via Zoom, where the BIPA teachers are in Indonesia and the learners are abroad." When asked for specific examples, this informant explained: "I often conduct writing activities using several platforms such as interactive digital media to collect and correct writing. I use an E-Learning Application."

All three instructors mentioned using digital platforms and AI-powered tools primarily for administrative and assessment functions. These included collecting assignments, organizing submissions, and providing automated grammar feedback on student writing. Informant 3 specifically mentioned using e-learning applications for writing activities, while Informant 2 referenced AI as "support in the teaching and learning process, not to replace the role of teachers."

Informant 3 identified constraints affecting AI adoption: "The main obstacle in using AI is the habits of BIPA learners themselves, for example, the use of AI is still difficult for adult learners, not the internet connection." This comment highlighted learner comfort and familiarity with digital learning environments as a limiting factor, particularly among older adult populations.

Perceptions of AI's Role and Impact (RQ3)

When asked directly whether AI would replace the teacher's role in language learning, 18 participants (72%) responded "no," 7 (28%) answered "maybe," and zero participants predicted that AI would definitively replace human instructors. Figure 3 displays this distribution.

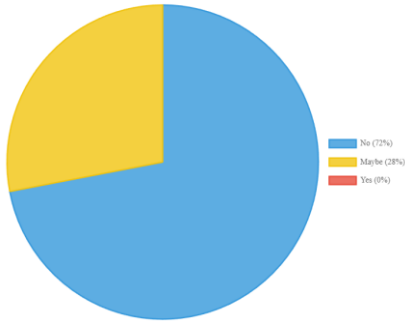

Figure 3. Student perceptions of whether AI will replace teachers in language learning (N=25)

This pattern held consistent across proficiency levels and nationalities. Both beginning learners (A1-A2) and advanced learners (B2-C2) maintained that human instruction remained essential. Similarly, learners from technologically advanced countries (Switzerland, Germany, United States) expressed views comparable to those from countries with less technological infrastructure.

When asked whether they felt confident studying Indonesian in their current location without a teacher physically present, responses emphasized teacher importance. Eighteen participants (72%) indicated they were “not sure” and needed a real teacher to assist them. Three participants (12%) stated they could study with a teacher who uses AI tools. Only 4 participants (16%) expressed confidence in their ability to learn effectively using AI without direct teacher involvement.

Confidence levels for using Indonesian in authentic situations (vacation, workplace interactions, email) with AI assistance were split: 14 participants (56%) answered “yes, I dare”, while 11 (44%) answered “no, I don’t dare.” Those expressing hesitation mentioned concerns that AI-generated language might sound unnatural or culturally inappropriate, potentially causing embarrassment or misunderstanding in real-world contexts.

All three instructors expressed the view that AI should function as a supplementary tool rather than a replacement for human instruction. Informant 2 stated: “AI should be used as a support in the teaching and learning process, not to replace the role of teachers.” None of the instructors predicted that AI would fully replace teachers in BIPA instruction, though all acknowledged its utility for specific bounded tasks such as vocabulary lookup, grammar checking, and pronunciation practice.

DISCUSSION

AI Familiarity vs. AI Dependence: The Enduring Role of Human-Mediated Learning

The paradox between universal AI awareness (100%) and predominant preference for teacher consultation (80%) when encountering difficulties offers

important insights into technology acceptance in educational contexts. While prevailing models like the Technology Acceptance Model emphasize perceived usefulness and ease of use as primary adoption drivers, our findings suggest these frameworks inadequately capture AI adoption complexity in language learning (Venkatesh et al., 2003). Learners demonstrated awareness of AI's potential utility yet actively chose not to use it for critical help-seeking moments, indicating that adoption decisions involve factors beyond instrumental rationality.

This awareness-adoption gap reveals what we term "pedagogical trust asymmetry." Trust in educational technology operates differently than trust in other digital tools because learning contexts involve high-stakes knowledge validation. Learners must trust not only that AI provides information but that it is accurate, appropriate to their proficiency level, and culturally contextualized. Teachers represent pre-validated sources—their expertise credentials and demonstrated competence establish authority that AI systems cannot yet match. This aligns with scholarship on epistemic trust, which demonstrates that learners evaluate source credibility through social and institutional markers rather than solely information quality (Bromme & Goldman, 2014).

Language-specific barriers add a critical dimension often overlooked in AI-education literature, which disproportionately focuses on English-language contexts. Most AI tools operate primarily in English, requiring BIPA learners to navigate what we conceptualize as "trilingual cognitive burden"—formulating questions in English, interpreting English explanations, then applying them to Indonesian contexts. Research confirms that Indonesian remains underserved by AI compared to dominant global languages (Joshi et al., 2020), but our findings reveal experiential consequences: learners describe AI assistance as "taking longer" despite supposed efficiency advantages. This temporal paradox, where supposedly instant AI help proves slower than teacher response, emerges because cognitive work of trilingual mediation exceeds time saved through automation.

This finding carries implications for educational equity. If AI tools disproportionately serve dominant languages, they risk entrenching rather than disrupting linguistic hierarchies. Technology positioned as democratizing education may inadvertently create new barriers for learners of less commonly taught languages. Our study offers empirical evidence that technological solutions designed in English-dominant contexts reproduce rather than challenge global language inequalities (Begum et al., 2025).

The even split between teacher-only (48%) and teacher-plus-AI (52%) preferences, with zero participants selecting AI-only instruction, demonstrates sophisticated functional differentiation. This maps onto sociocultural theory's distinction between tools and mediators (Vygotsky, 1978). Learners position AI as a tool, useful for discrete tasks like vocabulary lookup, but not as a mediator capable of scaffolding development through responsive adaptation. Teachers perform mediational work involving strategic support at moments of near-competence and gradual withdrawal as learners internalize skills. AI provides static assistance. The complete absence of support for AI-only instruction suggests

learners intuitively grasp this distinction, recognizing that language learning constitutes social practice requiring participation in communities of practice (Lave, 1991), not merely information acquisition amenable to algorithmic delivery.

Teacher Innovation and AI: Supportive Role Over Transformative Change

The modest level of observed teacher AI integration, where only 16% of students consistently noted AI use, reveals a gap between policy discourse and classroom reality. While institutional narratives emphasize digital transformation, actual pedagogical practice remains largely traditional with AI relegated to administrative functions. This finding contributes to scholarship on the implementation gap in educational technology (Selwyn, 2016), demonstrating that availability does not ensure meaningful integration. Significantly, our data reveal that this gap reflects not teacher technophobia but rational pedagogical judgment about where AI adds genuine value.

Teachers primarily employ AI for logistical functions: collecting assignments, organizing submissions, providing automated grammar feedback. This pattern reflects what we term “administrative augmentation without pedagogical transformation.” Teachers use AI to handle routine tasks, creating cognitive space for complex instructional work, explaining concepts, facilitating discussion, providing culturally contextualized feedback. This deployment strategy aligns with cognitive load theory, which suggests offloading mechanical tasks to technology can optimize human attention for higher-order pedagogical work requiring expertise, judgment, and social intelligence (Sweller, 2011).

Skill-specific variation in AI deployment reveals teachers’ sophisticated understanding of technological affordances and constraints. Writing instruction saw the most integration through grammar checkers and automated feedback tools, as AI efficiently scans essays for systematic errors. Speaking, listening, and cultural understanding saw minimal integration, as teachers recognize current AI limitations. AI cannot navigate real-time conversational complexity, explain why specific phrases sound inappropriate despite grammatical correctness, or provide cultural context enabling pragmatic competence. This selective deployment demonstrates professional judgment rather than blanket rejection or uncritical acceptance.

The constraint that adult learners struggle with AI not due to poor internet access but unfamiliarity with app-based learning challenges infrastructure-focused narratives about technology barriers. Older learners had developed learning strategies through decades of traditional education. Shifting to AI-mediated study required relearning how to learn, a metacognitive challenge beyond simply providing tools. This age-related digital literacy gap suggests successful AI integration requires sustained pedagogical support helping learners develop new strategies for evaluating and applying AI-generated information (Pokrivcakova, 2019), not merely tool provision.

The definitional ambiguity about what constitutes "AI" versus conventional educational technology complicates adoption assessment and may explain discrepancies between teacher self-reports and student perceptions. Teachers may consider themselves AI adopters when using learning management systems, while students reserve that label for generative AI like ChatGPT. This instability reflects broader confusion in educational discourse about AI's boundaries, highlighting the need for clearer operational definitions in research and policy.

From Replacement Anxiety to Collaboration: Reframing AI's Educational Role

The strong rejection of AI replacement scenarios (72% saying no, zero saying yes) cuts across proficiency levels, nationalities, and technological contexts, suggesting reasoned assessment rather than technophobic reaction. This consistency reflects language learning's inherently social nature. Decades of second language acquisition research demonstrate that interaction drives competence development, not merely exposure but meaningful communication where misunderstandings get negotiated and feedback flows naturally (Lightbown & Spada, 2021). Our findings extend this scholarship by empirically demonstrating that learners themselves recognize interaction's centrality, resisting narratives that frame AI as capable of replacing human teachers.

AI can simulate certain interaction aspects but cannot replicate the cultural attunement, emotional intelligence, and adaptive reasoning characterizing skilled teaching. Teachers adjust explanations based on subtle comprehension cues, draw on shared cultural references to illustrate concepts, and provide encouragement calibrated to individual psychology. Current AI systems lack this holistic responsiveness, operating through statistical patterns rather than genuine understanding of communicative intent or cultural context. When learners valued teachers as "more creative and effective," they recognized qualitative differences between human responsiveness and pattern matching.

The hesitation about using AI-generated language in authentic situations (44% expressing concern) reflects sophisticated awareness that grammatical correctness does not guarantee pragmatic appropriateness. AI might produce technically accurate Indonesian that nonetheless strikes native speakers as culturally tone-deaf. Research on interlanguage pragmatics confirms this complexity—successful communication requires understanding social norms, power relationships, and contextual appropriateness varying dramatically across cultures (Taguchi, 2019). Learners demonstrated awareness that fluent language use transcends accuracy, requiring pragmatic judgment that current AI inconsistently provides.

The preference for "teacher using AI" over "AI without teacher" models point toward realistic futures where technology augments rather than replaces human expertise. Our study contributes theoretical nuance to debates about AI in education by revealing how stakeholders conceptualize complementary rather than substitutive relationships between human and artificial intelligence. This challenges technological determinism where AI inevitably displaces teachers,

instead foregrounding learner and teacher agency in negotiating technology’s role based on pedagogical priorities.

These findings suggest that for BIPA programs, the strategic question shifts from whether AI threatens teachers to how programs can integrate technologies effectively while preserving what makes human instruction irreplaceable: cultural mediation, adaptive judgment, emotional support, and meaning negotiation through authentic social interaction. This requires teacher professional development focused not on technology resistance but on strategic AI deployment, helping instructors understand when AI adds genuine pedagogical value versus when it risks substituting convenience for educational depth. It also demands attention to developing AI tools specifically designed for Indonesian language learning with culturally appropriate responses, reducing the trilingual burden currently constraining effective use.

CONCLUSION

This study reveals that BIPA learners and instructors conceptualize AI as supplementary rather than substitutive, challenging narratives about automation displacing teaching expertise. Despite universal awareness of AI tools, 80% of learners prefer consulting teachers when encountering difficulties, a pattern reflecting not technophobia but rational assessment of pedagogical trust. Learners recognize that teachers provide validated, culturally contextualized knowledge that AI systems, designed predominantly for English, cannot reliably deliver. The trilingual cognitive burden faced by Indonesian learners navigating English-language AI interfaces demonstrates how supposedly efficient tools can paradoxically increase mental workload.

Teachers deploy AI primarily for administrative tasks, assignment collection, automated grammar feedback, rather than core instruction. This represents judicious pedagogical judgment, using technology to create space for complex work requiring human expertise: explaining cultural nuance, providing adaptive feedback, scaffolding communicative development. The complete absence of support for AI-only instruction, even among technologically sophisticated learners, underscores language learning's inherently social nature. Acquisition requires participation in communities of practice where meaning gets negotiated through interaction, not algorithmic information delivery. For BIPA programs, these findings suggest prioritizing teacher professional development in strategic AI integration over platform acquisition. Investment should support culturally appropriate tool development and maintain robust human pedagogical relationships that learners identify as irreplaceable.

This exploratory study's limited scope—25 learners, 3 instructors, convenience sampling, unvalidated survey—constrains generalizability. Nevertheless, convergence between learner and instructor data suggests patterns worthy of investigation through larger-scale, longitudinal research examining AI perception shifts as technologies evolve.

DECLARATION OF AI USAGE

From the drafting stage onward, the authors used the DeepL app to translate this manuscript from Indonesian language to English. The translations were intended solely as a guide and were subsequently revised manually. Furthermore, the authors used Grammarly app to refine the language, though the process was still supervised by a human touch. These AI tools were used exclusively for partial translation and grammar editing, such as correcting typos.

REFERENCES:

Adnan, & Adi. (2024). Implementasi Media Quizizz sebagai Sarana Pembelajaran pada Materi Teks Berita untuk Meningkatkan Hasil Belajar Siswa Kelas 7 SMP di Era Society 5.0. *JoLLA Journal of Language Literature and Arts*, *4*(9), 957–965. https://doi.org/https://doi.org/10.17977/um064v4i92024p957-965

Adnyana, S., & Siwantara, I. W. (2023). Strategi Pengembangan Program BIPA di Politeknik Negeri Bali. In I. M. R. J. Widanta, I. N. S. Sanjaya, & M. Wajdi (Eds.), *Prosiding Seminar Nasional Riset Bahasa dan Pengajaran Bahasa* (pp. 47–62). Pusat Penelitian dan Pengabdian kepada Masyarakat (P3M) Politeknik Negeri Bali. https://doi.org/https://doi.org/10.31940/senarilip.v5i1.47-62

Aldiyah, E. (2021). Perubahan Gaya Belajar di Masa Pandemi Covid-19. *CENDEKIA: Jurnal Ilmu Pengetahuan*, *1*(1), 8–16. https://doi.org/https://doi.org/10.51878/cendekia.v1i1.24

Alnasib, B. N. M. (2023). Factors Affecting Faculty Members' Readiness to Integrate Artificial Intelligence into Their Teaching Practices: A Study from the Saudi Higher Education Context. *International Journal of Learning, Teaching and Educational Research*, *22*(8), 465–491. https://doi.org/10.26803/ijlter.22.8.24

Attia, S., & Elsawy, E. (2024). Higher Education Students' Perceptions and Attitudes about Using ChatGPT in Oman: A Case Study of OCMT. *International Journal of Educational Sciences and Arts*, *3*(4), 304–321. https://doi.org/10.59992/IJESA.2024.v3n4p8

Begum, S., Min, J., & Sakkan, T. (2025). Decolonizing the digital classroom: A critical analysis of power, privilege, and algorithmic bias in AI-mediated learning environments. *Asian Journal of Interdisciplinary Research*, *8*(4), 301–330. https://doi.org/https://doi.org/10.54392/ajir25417

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Bromme, R., & Goldman, S. R. (2014). The public's bounded understanding of science. *Educational Psychologist*, *49*(2), 59–69. https://doi.org/https://doi.org/10.1080/00461520.2014.921572

Cerovac, M., & Keane, T. (2024). Fostering technologies literacy: integrating technical vocabulary into the primary school Technologies curriculum for young learners. *International Journal of Technology and Design Education*, *0123456789*. https://doi.org/10.1007/s10798-024-09934-1

Chen, F., Gao, Y., & Wang, X. (2023). Exploring the role of TESOL and digital technology in attitudinal change and sustainable learning for students of higher education. *BMC Psychology*, *11*(1), 1–16. https://doi.org/10.1186/s40359-023-01372-3

Creswell, J. W. C. & J. D. (2018). Qualitative, Quantitative, and Mixed Methods Approaches: Fifth Edition. In *Writing Center Talk over Time*. SAGE

Publications, Inc. https://doi.org/10.4324/9780429469237-3

DeJonckheere, M., Vaughn, L. M., James, T. G., & Schondelmeyer, A. C. (2024). Qualitative thematic analysis in a mixed methods study: Guidelines and considerations for integration. *Journal of Mixed Methods Research*, *18*(3), 258–269. https://doi.org/https://doi.org/10.1177/15586898241257546

Diktiristek, D. (2024). *Panduan Penggunaan Generative Artificial Intelligence (GenAI) pada Pembelajaran di Perguruan Tinggi*. Direktorat Pembelajaran dan Kemahasiswaan Direktorat Jenderal Pendidikan …. https://lldikti3.kemdikbud.go.id/wp-content/uploads/2024/11/Buku-Panduan-_-Penggunaan-Generative-AI-pada-Pembelajaran-di-Perguruan-Tinggi-cetak.pdf

Dörnyei, Z., & Taguchi, T. (2015). *Questionnaires in second language research: Construction, administration, and processing*. Routledge.

Faizin, Yuwana, S., & Sodiq, S. (2023). Designing Digital Student Workbook to Enhance Oral Communication Skills in Learning Indonesian language for Foreign Students (BIPA). *Eurasian Journal of Educational Research*, *106*(January), 300–320. https://doi.org/0.14689/ejer.2023.106.018

Ferk Savec, V., & Jedrinović, S. (2024). The Role of AI Implementation in Higher Education in Achieving the Sustainable Development Goals: A Case Study from Slovenia. *Sustainability*, *17*(1), 183. https://doi.org/10.3390/su17010183

Fithriana, A., & Karamina, F. P. (2024). Internasionalisasi Bahasa Indonesia: Upaya BIPA Dan Fenomena Penurunan Minat Bahasa Indonesia di Australia Tahun 2020-2024. *GLOBAL INSIGHT JOURNAL*, *9*(2). https://doi.org/https://doi.org/10.52447/gij.v9i2.7774

Iskandar, S., Rosmana, P. S., Fadillah, A. R., Ayuni, F., Nur'Ani, F. D., Apriliya, M., & Realistiya, R. (2023). Efektivitas Media Pembelajaran Interaktif terhadap Hasil Belajar Siswa Kelas 5 Sekolah Dasar. *JGK (Jurnal Guru Kita)*, *7*(3), 557–566. https://doi.org/https://doi.org/10.24114/jgk.v7i3.41630

Joshi, P., Santy, S., Budhiraja, A., Bali, K., & Choudhury, M. (2020). The state and fate of linguistic diversity and inclusion in the NLP world. *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, 6282–6293. https://doi.org/https://doi.org/10.18653/v1/2020.acl-main.560

Kasih, E. N. E. W., Indriyanto, K., & Wardani, L. D. P. (2025). Challenges in Ensuring Originality and Authenticity in AI-Generated Works. In A. Asrifan (Ed.), *AI in Literary Education and Language Learning* (pp. 37–64). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3373-6330-1.ch002

Kasih, E. N. E. W., Suprayogi, Indriyanto, K., Amarudin, & Putra, A. V. L. (2024). Artificial Intelligence for Literature Class: Trends and Attitude. *2024 10th International Conference on Education and Technology (ICET)*, 142–148. https://doi.org/10.1109/ICET64717.2024.10778422

Kvale, S., & Brinkmann, S. (2015). *InterViews: Learning the craft of qualitative research interviewing* (3rd Editio). SAGE Publications.

Lave, J. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university press. https://doi.org/https://doi.org/10.1017/CBO9780511815355

Lightbown, P. M., & Spada, N. (2021). *How languages are learned 5th Edition*. Oxford university press.

Miko, W. J., & Nasution, J. (2023). Digitalisasi Bahan Ajar Bahasa Indonesia untuk Penutur Asing. *Journal of Language Education (JoLE)*, *1*(1), 1–5. https://doi.org/https://doi.org/10.69820/jole.v1i1.57

Miles, M.B, Huberman, A.M, dan Saldana, J. (2014). *Qualitative Data Analysis* (3rd

ed.). SAGE Publications, Inc. https://www.metodos.work/wp-content/uploads/2024/01/Qualitative-Data-Analysis.pdf

Miles, M., & Huberman, A. (1984). *Qualitative Data Analysis: A Sourcebook of New Methods*. SAGE Publications Ltd.

Nasution, J. (2019). Analisis Kesulitan Bahasa Indonesia Bagi Pemelajar Di Samsifl Uzbekistan Pada Empat Keterampilan Berbahasa. *MEDAN MAKNA: Jurnal Ilmu Kebahasaan Dan Kesastraan*, *17*(2), 111–120. https://doi.org/https://doi.org/10.26499/mm.v17i2.2134

Nasution, J. (2022). Туплам-тулик-Хаитбой-2. *Methods of Teaching Foreign Languages – Innovations, Traditions, Problems and Solutions*, 90–96. https://www.researchgate.net/publication/361421441_Tuplam-tulik-Haitboj-2#fullTextFileContent

Nasution, J. (2025). Pengembangan Bahan Ajar Bahasa Indonesia Bagi Penutur Asing (BIPA) Berbasis Pariwisata. *RESWARA: Jurnal Pengabdian Kepada Masyarakat*, *6*(1), 63–73. https://doi.org/https://doi.org/10.46576/rjpkm.v6i1.4906

Nasution, J., Latiffani, C., & Pandia, N. (2024). Students' Perceptions on the Role of Artificial Intelligence (AI) in Learning Activities. *Conference Proceedings: Fostering Your Research Spirit*, 591–599. https://doi.org/https://doi.org/10.2024/c13kpe29

Pane, I., Hadju, V. A., & Maghfuroh, L. (2022). *Desain Penelitian Mixed Method*. Yayasan Penerbit Muhammad Zaini.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th Editio). SAGE Publications Ltd.

Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education*, *7*(3), 135–153. https://doi.org/DOI: 10.2478/jolace-2019-0025

Pratiwi, Y., Suyitno, I., Fawzi, A., Ariani, D., & Luciandika, A. (2022). How do students' entry-level competencies determine the learning needs of BIPA lectures? *Cakrawala Pendidikan*, *41*(2), 452–463. https://doi.org/10.21831/CP.V41I2.48579

Saddhono, K., Nugrahani, F., Syamsuri, A. S., Ermanto, Rahim, A. R., & Sarimanah, E. (2024). The Ethics of AI in Literature: Reflections On Representation and Responsibility. *2024 International Conference on IoT, Communication and Automation Technology (ICICAT)*, 755–760. https://doi.org/10.1109/ICICAT62666.2024.10923247

Selwyn, N. (2016). *Is technology good for education?* John Wiley & Sons.

Septriani, H., & Rustandi, Y. (2023). Optimalisasi Media Digital Interaktif Wordwall dalam PJJ BIPA di Kedutaan Besar Republik Indonesia di Bern, Swiss. *Ranah: Jurnal Kajian Bahasa*, *12*(1), 13–25. https://doi.org/https://doi.org/10.26499/rnh.v12i1.6208

Sweller, J. (2011). Cognitive load theory. In *Psychology of learning and motivation* (Vol. 55, pp. 37–76). Elsevier. https://doi.org/https://doi.org/10.1016/B978-0-12-387691-1.00002-8

Taguchi, N. (2019). *The Routledge handbook of second language acquisition and pragmatics*. Routledge New York.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view1. *MIS Quarterly*, *27*(3), 425–478. https://doi.org/https://doi.org/10.2307/30036540

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Harvard university press.

Widianto, E., & Pusse, T.-K. (2025). Cultura Franca: Investigating cultural gradations of Indonesian as a foreign language textbook. *Asian-Pacific Journal of Second and Foreign Language Education*, *10*(1), 30. https://doi.org/10.1186/s40862-025-00335-y

Appendix A. Participant Information and Responses in the Survey

INFORMATION			SURVEY QUESTIONNAIRES									
Initial	**Level**	**Nationality**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
RAG	A2	Egypt	Yes	Some-Times	Yes	Some-times	A combination of both	Looking for through AI	May be	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
SOR	A2	Tajikistan	Yes	Never	Some-times	Some-times	Study with a real teacher	Asking teacher	No	No, I don't dare	No	I am not sure; I need a real teacher to assist me
FUR	A2	Türkiye	Yes	Seldom	Yes	Some-times	Study with a real teacher	Asking teacher	No	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
AND	A2	Madagascar	Yes	Some-times	Yes	Yes	A combination of both	Asking teacher	No	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
DCB	C2	United States of America	Yes	Seldom	Some-times	No	Study with a real teacher	Asking teacher	No	No, I don't dare	No	I am not sure; I need a real teacher to assist me
LUC	A1	East Timor	Yes	Very often	Yes	Some-times	A combination of both	Asking teacher	No	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
AAR	B2	New Zealand	Yes	Some-times	Yes	No	Study with a real teacher	Looking for through AI	No	Yes, I dare	Yes	I am not sure; I need a real teacher to assist me
MAN	B1	Laos	Yes	Some-times	Yes	Some-times	A combination of both	Asking teacher	No	Yes, I dare	Some-times	I am sure I can use AI in studying
BEN	A2	United States of America	Yes	Some-times	Yes	No	A combination of both	Asking teacher	No	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
ELL	A2	United States of America	Yes	Very often	Some-times	Some-times	Study with a real teacher	Looking for through AI	No	No, I don't dare	Some-times	I am not sure; I need a real teacher to assist me
RAI	A2	Philippines	Yes	Often	No	No	Study with a real teacher	Asking teacher	No	No, I don't dare	No	I am not sure; I need a real teacher to assist me
EMA	B2	St. Lusiana	Yes	Often	Some-times	Some-times	A combination of both	Asking teacher	May be	Yes, I dare	Some-times	I am not sure; I need a real teacher to assist me
MUN	B2	Pakistan	Yes	Often	Yes	No	Study with a real teacher	Asking teacher	No	No, I don't dare	No	I am not sure; I need a real teacher to assist me
SAR	A2	Turkmenistan	Yes	Some-times	Some-times	No	A combination of both	Looking for	No	No, I don't dare	No	I am not sure; I need a real

								through AI				teacher to assist me
MAL	A2	England	Yes	Very often	Yes	Sometimes	A combination of both	Looking for through AI	May be	Yes, I dare	Sometimes	I think I can study with a real teacher, but they use AI
THE	A2	Germany	Yes	Often	No	No	Study with a real teacher	Asking teacher	May be	Yes, I dare	Yes	I am sure I can use AI in studying
RAC	A1	Switzerland	Yes	Often	Yes	Sometimes	Study with a real teacher	Asking teacher	May be	Yes, I dare	Yes	I am sure I can use AI in studying
ANG	A1	Italy	Yes	Very often	Yes	No	A combination of both	Asking teacher	No	Yes, I dare	No	I think I can study with a real teacher, but they use AI
JAS	B2	Germany	Yes	Very often	Yes	Sometimes	A combination of both	Asking teacher	No	No, I don't dare	Yes	I am not sure; I need a real teacher to assist me
PHI	A1	Switzerland	Yes	Very often	Sometimes	No	Study with a real teacher	Asking teacher	May be	Yes, I dare	No	I am sure I can use AI in studying
AL	A1	Switzerland	Yes	Often	Yes	Yes	Study with a real teacher	Asking teacher	No	Yes, I dare	Yes	I am not sure; I need a real teacher to assist me
WEY	A1	Switzerland	Yes	Very often	Yes	No	Study with a real teacher	Asking teacher	No	Yes, I dare	Sometimes	I am not sure; I need a real teacher to assist me
AZI	A1	Uzbekistan	Yes	Often	Yes	Yes	Study with a real teacher	Asking teacher	No	Yes, I dare	Yes	I am not sure; I need a real teacher to assist me
IRE	B1	Switzerland	Yes	Sometimes	Yes	Sometimes	A combination of both	Asking teacher	May be	Yes, I dare	Yes	I think I can study with a real teacher, but they use AI
VAS	A2	Uzbekistan	Yes	Sometimes	Yes	Yes	A combination of both	Asking teacher	No	Yes, I dare	Sometimes	I am not sure; I need a real teacher to assist me

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