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From Placism to Cosmopolitanism: An AI-Enhanced Multilingual Pedagogical Framework for Global Higher Education

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A B S T R A C T

Placism, understood as place-bound hierarchies of belonging and suspicion of outsiders, poses a challenge to inclusive and globally connected higher education. This study examines whether AI-enhanced multilingual education can support educational outcomes relevant to intercultural participation and uses those findings to develop a Pedagogy and Provision (P&P) framework for global higher education. The study combines a cross-sectional survey of 500 students across 10 countries, an institutional survey of 200 higher-education institutions, and a 12-week controlled intervention with 120 students. The intervention group showed greater gains than the control group in learning motivation (+42% vs. +18%), cross-cultural confidence (+39% vs. +12%), language proficiency (+35% vs. +20%), and acceptance of other cultures (+48% vs. +22%). Institutional results also indicate uneven AI adoption and provision. These findings support the educational potential of AI-enhanced multilingual learning but do not constitute formal validation of the proposed framework. Drawing on Linguistic Influentialism and the antecedent Production and Practice model, the study proposes Pedagogy and Provision as a conceptual framework linking multilingual pedagogy with equitable technological provision. The framework is offered for further empirical testing rather than as a universally validated model.

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1. Introduction

Higher education increasingly operates across linguistic, cultural, and geographic boundaries, yet participation in global academic life remains shaped by unequal mobility, institutional resources, and hierarchies of belonging. In this article, placism refers to a place-bound orientation marked by territoriality, hierarchical belonging, and suspicion of outsiders (Evans, 2017). The concept is educationally relevant because such orientations can constrain intercultural engagement and sit uneasily with the goals of cosmopolitanism and global citizenship. The present study treats placism as an educational problem to be investigated rather than assuming that its importance alone establishes the need for a new framework.

Research on socially contextualized language pedagogy indicates that language learning is strengthened when learners' identities and social contexts are taken seriously (Roozafzai, 2024; Rwodzi et al., 2020). Research on AI-supported language learning likewise suggests potential benefits for personalization, linguistic practice, and cross-cultural communication (Fountoulakis, 2024; Xia et al., 2024; Roozafzai & Zaeri, 2024). These strands establish that technology can support language learning and that culturally situated pedagogy matters. They do not, however, by themselves explain how multilingual technological participation should be connected to place-bound exclusion, linguistic agency, intercultural openness, and

unequal institutional provision within one educational account. Related work on presence, linguistic elements, and self-perception in narrative games illustrates the relevance of digitally mediated language and identity, without directly testing the present AI intervention (Zaeri & Roozafzai, 2024).

Recent syntheses strengthen this evidence while also narrowing what can defensibly be claimed. Reviews of AI in higher education and language education report expanding use for personalization, feedback, interaction, and learner support, but they also identify uneven empirical quality, concentration in particular contexts, and limited long-term or objective evidence (Bond et al., 2024; Crompton & Burke, 2023; Li et al., 2024; Lo et al., 2024; Wang et al., 2024; Zheng & Yang, 2024). Studies focused on conversational AI similarly point to positive affective and cognitive outcomes alongside concerns about privacy, overreliance, academic integrity, and unequal access (AlTwijri & Alghizzi, 2024; Kohnke, 2024; Lai & Lee, 2024; Tlili et al., 2023). These findings support the educational plausibility of AI-enhanced multilingual learning, but they also reinforce the need to separate observed learning outcomes from broader claims about identity, inclusion, or social transformation.

A second body of scholarship concerns language, power, and hybridity. Linguistic Influentialism conceptualizes the global diffusion of language in terms of influence while remaining attentive to hegemonic relations (Roozafzai, 2023, 2025). Postcolonial work on hybridity emphasizes that cultural and linguistic identities are negotiated rather than fixed, while also warning against treating hybridity as automatically emancipatory (Mizutani, 2013; Yazdiha, 2010; Ndi, 2019). Related research on first-person narrative games illustrates how linguistic features and immersive contexts may shape identification and self-perception (Zaeri & Roozafzai, 2024). This evidence concerns digital narrative experience, not the effectiveness of AI-supported multilingual instruction. For the present study, intentional hybridity is therefore treated as a possible interpretive mechanism: learners may deliberately navigate multiple linguistic and cultural repertoires, but such navigation cannot be inferred merely from the use of AI tools.

Recent work on intercultural competence further supports a cautious, relational interpretation. Foreign-language proficiency can be associated with intercultural competence through the quality and quantity of intercultural interaction, while contemporary reviews stress that intercultural competence is multidimensional, context-sensitive, and not reducible to linguistic performance alone (Li et al., 2025; Xu et al., 2025). Emerging studies of AI-mediated cross-cultural learning show that contextualized and socially situated AI activities can support intercultural learning, yet human mediation, communicative difference, and sociocultural context remain important (Bøhn et al., 2026; Kozlova, 2026; Mao et al., 2026; Shadiev et al., 2026). This literature strengthens the present study's decision to treat intentional hybridity and cosmopolitan orientation as interpretive propositions rather than outcomes automatically produced by AI use.

The Production and Practice (P&P) Model of Knowledge Development (Roozafzai, 2021) is an antecedent conceptual resource. It distinguishes the production of knowledge from its enactment in practice. In the present study, this earlier model is not synonymous with the framework proposed as an outcome. Instead, it informs a distinction between pedagogical activity and the institutional conditions that make such activity possible. This distinction becomes important because educational benefits associated with AI-supported multilingual

learning depend not only on classroom pedagogy but also on access, infrastructure, policy, and institutional readiness.

That distinction is also consistent with current higher-education research on AI adoption and governance. Institutional uptake depends on more than the availability of tools; it is shaped by policy, operational support, AI competence, perceived risk, facilitating conditions, infrastructure, and staff preparedness (Chan, 2023; Delcker et al., 2024; Helmiatin et al., 2024; Nagy et al., 2024; Walter, 2024). Research on generative AI and digital inequality likewise shows that access, skills, and implementation conditions can distribute benefits unevenly across learners and institutions (Jamal Eddine et al., 2026; Tukachinsky Forster et al., 2026). In the present article, these considerations do not replace the empirical institutional survey; they provide a stronger literature-based rationale for treating provision as a distinct analytic dimension alongside pedagogy.

The unresolved problem addressed here is therefore not whether AI can assist language learning in general, nor whether multilingualism and intercultural education are valuable. Rather, it is how evidence concerning AI-supported multilingual learning and uneven institutional adoption can be interpreted together to explain a pathway from language-learning participation toward broader cosmopolitan educational orientations without equating technological use with transformed power relations. The study's distinctive contribution is to connect two analytically separate dimensions: pedagogy, referring to multilingual and intercultural learning practices, and provision, referring to the institutional resources and conditions that enable equitable participation.

Research on internationalization and multilingual higher education also indicates that global participation is mediated by institutional language policy, linguistic capital, and learners' positioning and agency, rather than by mobility or technology alone (Fudiyartanto, 2024; Patiño-Santos et al., 2026; Pradita & Arimi, 2025). This strengthens the relevance of connecting multilingual pedagogy with institutional provision while preserving the study's original conceptual sequence.

Accordingly, this study is an empirical investigation with a conceptual framework-development component. It asks: To what extent do AI-enhanced multilingual learning experiences support measurable educational outcomes relevant to intercultural participation, and how can student- and institution-level evidence inform a Pedagogy and Provision framework for addressing place-bound exclusion in global higher education? The empirical contribution concerns observed learning and institutional patterns; the conceptual contribution is the proposed relationship among Linguistic Influentialism, intentional hybridity, multilingual pedagogy, and equitable provision. Claims concerning reduced placism, redistributed linguistic agency, or transformed power relations are treated as theoretical propositions requiring further direct testing.

2. Method

To examine educational outcomes associated with AI-enhanced multilingual learning and the institutional conditions surrounding its adoption, the study used a multi-phase empirical design with a framework-development component. The evidence reported in this article comprises a student survey, an institutional survey, and a controlled intervention. The earlier Production and Practice model (Roozafzai, 2021) informed the distinction between knowledge

production and enactment, while the Pedagogy and Provision framework was developed interpretively from the combined student- and institution-level evidence; it did not guide data collection as a pre-validated model.

2.1. Phase 1: Quantitative Survey Design

A comprehensive cross-sectional survey was conducted to collect baseline data on attitudes, practices, and perceptions related to placism, AI usage in language learning, and linguistic identity. Two parallel surveys were administered:

a. Student Survey: A questionnaire was distributed to 500 undergraduate and graduate students from 10 countries (50 students per country) between October 2023 and March 2024. Countries were selected to ensure representation from diverse linguistic, cultural, and economic contexts (including China, Germany, South Africa, USA, and Brazil, among others). The survey included:
   - A 15-item Placism Scale (α = .84) adapted from Evans (2017) to measure territorial attitudes and suspicion of outsiders
   - A 12-item AI in Education Scale (α = .79) assessing frequency and perceived effectiveness of AI tools in language learning
   - An 8-item Language Identity Scale (α = .81) measuring linguistic self-concept and attitudes toward multilingualism
   - Demographic questions including institution type, field of study, and language background

b. Institutional Survey: A parallel survey was administered to 200 higher education institutions globally in 2024, targeting academic administrators, department heads, and educational technology directors. This survey assessed:
   - Current implementation of AI tools in language teaching
   - Institutional policies supporting multilingual education
   - Perceptions of how AI might mitigate placism in academic settings
   - Resource allocation for digital learning technologies

2.2. Phase 2: Experimental Intervention

A 12-week controlled intervention was conducted with 120 students from four participating institutions to compare AI-enhanced multilingual instruction with traditional multilingual instruction. The intervention assessed educational outcomes that are relevant to, but not equivalent to, the broader constructs of cosmopolitanism or reduced placism.

- Experimental Group (n=60): Participated in an AI-supported multilingual courssing the Cross-Cultural Intelligent Language Learning System (CILS) and other AI tools (ChatGPT cultural modules, adaptive learning platforms)
- Control Group (n=60): Received traditional multilingual instruction without AI enhancement
- Assessment Measures: Both groups completed pre- and post-intervention assessments including:
  - Standardized language proficiency tests (CEFR-aligned)
  - Intercultural Competence Scale
  - Placism Attitude Scale
  - Learning Motivation Inventory

2.3. *Qualitative Materials and Evidentiary Scope*

The original study design also included interviews, focus groups, document analysis, and classroom observations at eight institutions. However, the manuscript dataset available for the present analysis does not provide a sufficiently transparent set of coded themes, frequencies, or attributable excerpts to support a standalone qualitative results section. To avoid overstating the evidence, the revised article does not use those materials as independent empirical support for claims about agency, hybridity, or transformed power relations. Future reporting should present the qualitative corpus and thematic analysis in full before drawing such claims.

2.4. *Data Analysis*

Quantitative survey findings are summarized descriptively. Intervention outcomes are reported as pre-to-post percentage changes within each group, calculated as 100 × (post-test mean − pre-test mean) / pre-test mean. To assess between-group differences at the end of the 12-week intervention, independent-samples t tests were calculated from the reported post-test group means, standard deviations, and sample sizes (n = 60 per group), with 118 degrees of freedom. Cohen's d was calculated using the pooled post-test standard deviation, and 95% confidence intervals refer to differences between post-test group means. These cross-sectional post-test comparisons are distinct from tests of between-group differences in change over time; such longitudinal contrasts cannot be estimated from the available marginal summary statistics without the within-person covariance. Accordingly, the percentage changes are descriptive and the inferential statistics refer specifically to post-test group contrasts.

2.5. *Ethical Considerations*

The earlier manuscript reports institutional ethics approval and informed consent. The identity of the approving committee, approval date and reference number have not been provided for this revision and are therefore not stated. No illustrative approval identifier has been used. The available documentation does not establish specific third-party AI-log retention arrangements.

This design provides evidence at three complementary levels: patterns of student AI use, comparative intervention outcomes, and institutional adoption/provision. These sources are used to develop, rather than formally validate, the Pedagogy and Provision framework.

Conceptually, Production and Practice is treated as the antecedent knowledge-development model; Linguistic Influentialism supplies the language-and-power perspective; intentional hybridity is a possible interpretive mechanism; AI-enhanced multilingual education is the pedagogical domain; and Pedagogy and Provision is the framework proposed from the study's synthesis.

The resulting conceptual sequence does not assume that technology itself reduces placism. Instead, it proposes that multilingual pedagogy may support intercultural participation when accompanied by equitable provision, while stronger claims concerning agency, hybridity, placism, and power require direct empirical measurement.

The study therefore distinguishes observed outcomes from theoretical interpretation and uses the empirical evidence to delimit, rather than overextend, the proposed framework.

3. Result

This section reports the empirical findings before applying the conceptual framework. The evidence is organized around (1) student use and perceived impact of AI tools, (2) the controlled intervention, and (3) institutional adoption and provision. Interpretive claims concerning placism, linguistic agency, intentional hybridity, and cosmopolitanism are reserved for the Discussion.

Table 1 presents usage frequency and self-reported learning improvement for AI tools among the 500 students described in the Methodology. Real-time translation was the most frequently used category (88%), followed by grammar and writing support (78%). Cross-cultural conversation tools were used by 52% of respondents. These results describe patterns of use and perceived benefit; they do not establish causal effects.

Table 1. Usage of AI Tools in Language Learning (Survey from 2023–2024)

Use Case	Frequency of Use (%)	Example AI Tools	Self-Reported Learning Improvement
Grammar & Writing Support	78%	Grammarly, Quillbot	+32%
Speaking & Pronunciation	65%	ELSA Speak, Duolingo AI	+28%
Cross-Cultural Conversation	52%	ChatGPT, Replika	+41%
Personalized Learning Paths	45%	Khan Academy AI, Coursera AI	+36%
Real-Time Translation	88%	DeepL, Google Translate AI	+48%

***Source:** Survey of 500 university students across 10 countries (2023–2024)

The student survey indicates broad engagement with AI-supported language learning, especially for translation and writing support. The reported improvement figures are self-reported and should therefore be interpreted as perceived learning benefits rather than objective proficiency gains.

Cross-cultural conversation and personalized learning were less frequently used than translation and writing tools, but respondents reported positive perceived learning effects. These patterns establish an empirical baseline for the intervention without demonstrating changes in linguistic power, hybridity, or placism.

The student-survey findings in this article refer to the 500-student sample described in Methods; no separate regional dataset is included in the analyses.

Table 2 reports baseline and follow-up means, standard deviations, and descriptive percentage changes for the four intervention outcomes. The experimental group exhibited larger descriptive increases than the control group in learning motivation (41.9% vs. 18.0%), cross-cultural confidence (38.9% vs. 12.1%), language proficiency (34.9% vs. 19.9%), and acceptance of other cultures (48.0% vs. 22.1%). Independent-samples post-test comparisons (Table 2, inferential panel) yielded statistically significant group differences in all four outcomes (all $p < .001$). These comparisons assess end-point group differences rather than the statistical significance of differential pre/post change.

Table 2. Impact of AI-Supported Multilingual Courses on Learning Motivation and Intercultural Outcomes (Experimental vs. Control Group)

Outcome	Group	Pre-test M (SD)	Post-test M (SD)	Change (%)
Learning motivation	Experimental	3.10 (0.45)	4.40 (0.38)	+41.9%
	Control	3.05 (0.48)	3.60 (0.42)	+18.0%
Cross-cultural confidence	Experimental	2.85 (0.52)	3.96 (0.41)	+38.9%
	Control	2.90 (0.50)	3.25 (0.45)	+12.1%
Language proficiency	Experimental	2.95 (0.40)	3.98 (0.35)	+34.9%
	Control	2.92 (0.42)	3.50 (0.38)	+19.9%
Acceptance of other cultures	Experimental	3.00 (0.55)	4.44 (0.36)	+48.0%
	Control	2.98 (0.52)	3.64 (0.40)	+22.1%

Study Design: 12-week multilingual course; experimental group used AI-assisted tools (CILS, ChatGPT cross-cultural modules)

Descriptive percentage changes were calculated as 100 × (post-test mean − pre-test mean) / pre-test mean. Post-test group contrasts used pooled-variance independent-samples t tests with n = 60 per group, df = 118, and Cohen's d based on pooled post-test standard deviations. Two-sided 95% confidence intervals are reported for the post-test mean differences. No paired change-score test is inferred from marginal pre/post summary statistics.

Table 2. (continued): Independent-samples post-test comparisons

Outcome	t(118)	p	Cohen's d	95% CI of difference
Learning motivation	10.94	< .001	2.00	[0.655, 0.945]
Cross-cultural confidence	9.03	< .001	1.65	[0.554, 0.866]
Language proficiency	7.20	< .001	1.31	[0.348, 0.612]
Acceptance of other cultures	11.52	< .001	2.10	[0.662, 0.938]

Table 3 shifts the analysis to institutional provision. The 2024 survey of 200 higher-education institutions reports variation in current AI adoption, planned adoption, and institutional belief that AI can help reduce placism.

Table 3. Attitudes of Higher Education Institutions Toward AI and Multilingual Education (2024 Institutional Survey)

Institution Type	Already Using AI for Language Teaching (%)	Planning to Adopt Within 2 Years (%)	Believe AI Helps Reduce Placism (%)
Research Universities	64%	28%	71%
Teaching Universities	41%	45%	62%
Community Colleges	33%	52%	58%
Online Platforms	89%	8%	84%

Source: Survey of 200 higher education institutions globally (2024).

Institutional adoption was uneven. Online platforms reported the highest current use of AI for language teaching (89%), while community colleges reported the lowest (33%) but the highest planned adoption within two years (52%). These descriptive patterns identify differences in technological readiness and provision.

The institutional responses also show varying levels of belief in AI's potential to reduce placism. Because these are perceptions rather than measured reductions in placism, they are

treated as indicators of institutional orientation, not as evidence that placism was actually reduced.

Taken together, the institutional findings make provision analytically necessary: the pedagogical possibilities of AI-supported multilingual education cannot be separated from differences in infrastructure, resources, policy, and institutional readiness.

Across the reported evidence, the study therefore supports three bounded conclusions: students use AI extensively for multilingual learning; the intervention group achieved stronger gains on the measured educational outcomes; and institutions differ substantially in AI adoption and readiness. The proposed framework is developed from these findings in the Discussion rather than presented as an empirically validated result.

4. Discussion

The findings are best interpreted by separating direct evidence from educational inference and theoretical proposition. Directly, the study shows patterns of AI use, stronger intervention-group gains on four measured outcomes, and uneven institutional adoption. Educationally, these findings suggest that AI-supported multilingual instruction can create conditions favorable to language development and intercultural participation. Theoretically, the Pedagogy and Provision framework proposes how such conditions might contribute to more cosmopolitan higher education, but this higher-order claim remains to be tested directly.

First, the intervention findings are consistent with prior work describing AI as a support for personalized language practice and intercultural communication (Fountoulakis, 2024; Xia et al., 2024; Roozafzai & Zaeri, 2024). The present study adds a comparative intervention in which motivation, proficiency, cross-cultural confidence, and acceptance of other cultures improved more strongly under AI-supported instruction. Recent systematic reviews likewise describe AI-supported language learning as promising for motivation, interaction, feedback, and learner support while cautioning against treating short-term or self-reported gains as evidence of broad or durable transformation (AlTwijri & Alghizzi, 2024; Lai & Lee, 2024; Li et al., 2024; Lo et al., 2024; Wang et al., 2024). The contribution is therefore not the claim that AI automatically produces cosmopolitanism, but evidence that carefully structured multilingual AI use can support educational outcomes relevant to intercultural participation. This bounded reading is also consistent with broader analyses that frame generative AI as pedagogically promising but dependent on human judgment, contextual design, and institutional safeguards (Farrokhnia et al., 2024; Lim et al., 2023).

Second, Linguistic Influentialism provides an interpretive lens for considering language not only as a skill but also as a medium of participation and influence (Roozafzai, 2023, 2025). The findings do not directly demonstrate redistribution of linguistic power. Rather, they indicate improved confidence and proficiency that may expand learners' capacity to participate across linguistic boundaries. Recent higher-education research likewise shows that language participation, internationalization, and intercultural competence are shaped by linguistic capital, institutional language policy, positioning, and the quality of intercultural interaction (Fudiyartanto, 2024; Li et al., 2025; Patiño-Santos et al., 2026; Pradita & Arimi, 2025). This distinction is important: increased capability is an empirically supported outcome, whereas redistributed agency is a theoretical implication requiring direct measures of participation, voice, and influence.

Third, intentional hybridity is treated as a possible mechanism rather than an observed outcome. Postcolonial scholarship emphasizes that hybridity can unsettle fixed categories while also cautioning against assuming that hybrid identities are inherently emancipatory (Mizutani, 2013; Yazdiha, 2010; Ndi, 2019). In the present framework, multilingual and cross-cultural learning may create opportunities for learners to navigate multiple repertoires intentionally. Contemporary intercultural research similarly treats competence as relational and context-sensitive, and emerging AI-mediated studies indicate that cross-cultural learning benefits from contextualization, human mediation, and opportunities for meaningful interaction (Bøhn et al., 2026; Kozlova, 2026; Mao et al., 2026; Shadiev et al., 2026; Xu et al., 2025). Demonstrating intentional hybridity itself, however, would require qualitative evidence of identity negotiation or behavioral measures beyond the outcomes reported here.

Fourth, the institutional survey shows why pedagogy alone is insufficient. Current AI adoption varies markedly by institution type, and planned adoption is highest among institutions that currently report lower implementation. These differences foreground educational equity: a pedagogical approach that depends on advanced technological access may reproduce rather than reduce exclusion if provision is uneven. This interpretation is consistent with higher-education evidence showing that AI adoption depends on governance, operational support, staff competence, facilitating conditions, perceived risks, and institutional readiness rather than tool availability alone (Chan, 2023; Delcker et al., 2024; Helmiatin et al., 2024; Nagy et al., 2024; Walter, 2024). The provision dimension therefore concerns infrastructure, access, policy, staff capacity, and institutional support.

The conceptual contribution of the study is the resulting Pedagogy and Provision framework. Production and Practice (Roozafzai, 2021) remains the antecedent knowledge-development model. In the proposed educational framework, Pedagogy refers to AI-enhanced multilingual and intercultural learning practices; Provision refers to the institutional conditions required for those practices to be accessible and sustainable. Linguistic Influentialism informs how language participation can be interpreted in relation to influence, while intentional hybridity represents a hypothesized mechanism connecting multilingual engagement with more flexible cultural positioning.

This architecture clarifies the role of the principal constructs. Unequal institutional provision and place-bound exclusion function as contextual conditions. AI-enhanced multilingual pedagogy is the educational intervention domain. Motivation, language proficiency, cross-cultural confidence, and acceptance of other cultures are measured outcomes. Linguistic agency and intentional hybridity are proposed mechanisms or intermediate interpretations. Cosmopolitanism and global citizenship are higher-order educational orientations rather than outcomes directly established by the present data.

Accordingly, the framework should be understood as evidence-informed rather than empirically validated as a whole. The intervention supports specific propositions about learning and intercultural outcomes, and the institutional survey supports the importance of provision. Formal framework validation would require explicit measurement of the framework's constructs, testing of hypothesized relationships, replication across settings, and qualitative or longitudinal evidence showing how learners negotiate identity, agency, and belonging over time.

This recalibration also changes the interpretation of placism. Greater acceptance of other cultures and cross-cultural confidence are relevant to less place-bound orientations, but they are not direct proof that placism has been reduced. Placism involves social and territorial hierarchies that extend beyond individual attitudes. Future research should therefore operationalize placism explicitly and examine whether changes persist beyond the course and translate into patterns of participation, institutional inclusion, or cross-border collaboration.

The study's practical implication is consequently bounded but useful. Higher-education institutions considering AI-supported multilingual learning should combine pedagogical design with provision strategies: access to appropriate tools, culturally responsive implementation, staff preparation, data and ethics safeguards, and support for institutions or learners with fewer technological resources. This emphasis is reinforced by recent work on AI governance and digital inequality, which shows that benefits depend on implementation conditions and that access, competence, and institutional support can shape who benefits from generative AI (Bond et al., 2024; Chan, 2023; Jamal Eddine et al., 2026; Kohnke, 2024; Tukachinsky Forster et al., 2026). Such measures can strengthen the conditions for inclusive international engagement without assuming that technology alone transforms structural power relations.

In summary, the evidence supports the educational potential of AI-enhanced multilingual learning and demonstrates that institutional readiness is uneven. The Pedagogy and Provision framework integrates these two observations into a testable conceptual account. Its value lies in specifying relationships that future research can examine, not in claiming universal transformation from the present dataset.

The retained evidence supports a bounded interpretation: the intervention reports larger improvements in the four educational outcomes under AI-enhanced instruction, while the student and institutional surveys describe AI use, perceived benefits, and variation in institutional provision. These findings do not directly demonstrate a reduction in placism, a transformation of linguistic power relations, or empirical validation of the complete Pedagogy and Provision framework. Interpretation is additionally constrained by incomplete reporting of sampling, measurement, and inferential procedures.

The institutional findings (Table 3) describe uneven AI adoption and perceived potential across institution types. They do not establish that AI has reduced placism in those institutions. Category-specific denominators and recruitment details should be reported if recoverable from the original survey records; until then, institutional percentages are interpreted descriptively only.

Intentional hybridity and redistribution of linguistic agency remain conceptual propositions rather than measured intervention outcomes. Future studies should operationalize these constructs directly and evaluate whether AI-supported multilingual education affects them under different institutional conditions.

5. Conclusion

This study examined AI-enhanced multilingual education as an educational response to place-bound exclusion and as a basis for developing a Pedagogy and Provision framework. The reported evidence shows three principal patterns: substantial student use of AI for language learning, stronger intervention-group gains in motivation, cross-cultural confidence,

language proficiency, and acceptance of other cultures, and uneven institutional adoption of AI for multilingual education.

These findings support a cautious educational interpretation. AI-enhanced multilingual learning can support outcomes relevant to intercultural participation, but the study does not establish that AI itself reduces placism, redistributes linguistic power, or produces cosmopolitan identity. The Pedagogy and Provision framework is therefore proposed as an evidence-informed conceptual contribution. It links multilingual and intercultural pedagogy with the institutional resources, policies, and access conditions required for equitable participation.

For practice, the results suggest that institutions should evaluate pedagogy and provision together. Investment in AI tools should be accompanied by culturally responsive course design, staff capacity, access support, and attention to differences in institutional readiness. For research, the framework requires further testing with direct measures of placism, linguistic agency, intentional hybridity, and global-citizenship outcomes, as well as longitudinal and qualitative evidence of how these processes develop.

Several limitations delimit the conclusions. The student survey relies partly on self-reported improvement; the intervention is limited to 120 participants and 12 weeks; institutional findings represent reported adoption and perceptions rather than demonstrated institutional effects; and the manuscript record does not provide sufficiently transparent coded qualitative outputs for independent qualitative claims. The originally reported 1,200-participant regional table was therefore removed because its relationship to the documented 500-student sample could not be established. These limitations mean that the proposed framework should be treated as a testable model for subsequent research rather than a formally validated or universally generalizable framework. Original participant-level records and statistical outputs were not available for independent verification in this revision; reconstructed summaries therefore cannot substitute for archived research data.

Within these boundaries, the study contributes a more precise account of how technology-supported multilingual learning may relate to globally connected higher education: pedagogical opportunities matter, but their inclusive value depends on provision. This relationship provides a focused basis for future work on multilingual participation, educational equity, cosmopolitan orientations, and global citizenship.

Declarations

Author Contribution Statement

Zahra Sadat Roozafzai is the sole author of this manuscript and is fully responsible for the conceptualization, preparation, review, and final approval of the manuscript.

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Data Availability Statement

The statistical summary supporting the descriptive analyses and post-test comparisons reported in this study is available from the corresponding author upon reasonable request, subject to applicable confidentiality and institutional requirements. Participant-level data are not included in the submission.

Declaration of Interests Statement

The author declares that there are no known competing financial interests or personal relationships that could have influenced the work reported in this manuscript.

Ethics and Consent Statement

The manuscript reports that institutional permission/approval and informed consent were obtained for the study. However, the identity of the approving committee, the date of approval, and the corresponding approval or reference number are not available in the current manuscript record. These details require verification and completion by the author prior to final publication.

AI Use Statement

Generative AI-assisted tools were used during the preparation of this manuscript to support language editing, manuscript organization, and literature-search assistance. All AI-assisted outputs were critically reviewed and independently verified by the author against the study data and cited sources. The author remains fully responsible for the accuracy, interpretation, originality, citations, numerical statements, and overall integrity of the manuscript, as well as for ensuring compliance with the journal's AI policy.

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