VietTESOL International Convention 2025

AI'S IMPACT ON URBAN-RURAL INEQUALITY IN FOREIGN LANGUAGE EDUCATION IN VIETNAM (HANOI VS. TUYEN QUANG)

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INTRODUCTION & RESEARCH GAP

BACKGROUND

In the era of the Fourth Industrial Revolution, Artificial Intelligence, or AI, has become a transformative force in education worldwide: Duolingo and ELSA Speak - personalize practice and provide instant feedback, which greatly improves learning outcomes

In Vietnam, the demand for English proficiency is rapidly increasing to meet the needs of globalization and labor market competitiveness.

=> However, the digital divide between urban and rural areas remains a serious challenge.

BACKGROUND

The Ministry of Information and Communications (2023), more than 21% of the population still lacks access to the Internet, mainly in rural and remote regions. This unequal access to technology risks widening educational inequality if it is not addressed in time.

Our research: Evaluating the impact of AI on language education inequality between urban Hanoi and rural Tuyen Quang during the period 2023–2025

=> Analyze how AI affects learning quality to identify barriers to AI adoption in rural schools: Limited infrastructure, insufficient teacher training, and high costs
=> To propose practical solutions for reducing inequality.

BACKGROUND

A quantitative survey: 108 participants from both urban and rural areas

Statistical techniques such as reliability testing, factor analysis, and regression.

=> Three factors — access to AI, frequency of AI use, and digital skills — all significantly affect educational inequality. The actual use of AI tools emerged as the strongest factor, suggesting that frequent and effective use can help reduce the urban–rural divide

RESEARCH GAP

2018
- Warschauer & Xu analyzed the digital divide in the United States, yet they did not evaluate the role of AI in foreign language education.

2016
- Luckin et al discussed adaptive AI systems in general education, but not in language learning.

Many international studies have examined AI in education but not in the specific context of foreign language learning or regional inequality.

RESEARCH GAP

2019 • Holmes et al. confirmed that AI can promote educational equity, but they lacked a focus on local cultural and infrastructural conditions.

2019 • Selwyn criticized the assumption of technology as a neutral tool, stressing the need for empirical evidence in developing countries.

Some studies highlighted the potential of AI but stayed largely descriptive.

RESEARCH GAP

2021 • Zhao et al. emphasized the impact of digital infrastructure on AI learning, yet they overlooked regional disparities.

2021 • Ma, Xiao & Liu investigated motivation in language learning between rural and urban students, but excluded AI.

2020 • Li & Ni studied AI in English teaching, but did not compare urban and rural differences.

Studies in Asia, particularly China, provide useful insights but still leave critical gaps.

RESEARCH GAP

2023 • Vu & Tran discussed access to technology but lacked empirical data on AI use in language learning.

2022 • Trần & Phạm studied AI in general education without addressing its impact on language inequality

2021 • Nguyễn & Lê analyzed digital inequality in education, but not in relation to AI

2020 • Nguyen et al. focused on digital transformation in higher education, not in secondary or high schools, which are the most vulnerable to inequality.

Research in Vietnam remains very limited

RESEARCH GAP SUMMARY

A LACK OF EMPIRICAL, QUANTITATIVE EVIDENCE ON HOW AI INFLUENCES FOREIGN LANGUAGE EDUCATION INEQUALITY BETWEEN URBAN AND RURAL STUDENTS IN VIETNAM.

CONDUCTING SURVEY-BASED STATISTICAL ANALYSIS AND DEMONSTRATING THAT NOT ONLY ACCESS BUT ALSO USAGE AND DIGITAL SKILLS ARE DECISIVE.

A STRONGER FOUNDATION FOR POLICY MAKERS, EDUCATORS, AND TECHNOLOGY DEVELOPERS TO DESIGN EQUITABLE SOLUTIONS FOR AI-BASED LANGUAGE LEARNING.

02

METHODOLOGY & FINDINGS

RESEARCH METHODOLOGY

APPROACH	Quantitative Study
RESEARCH TOOL	A structured questionnaire
SCALE	5-point Likert Scale
SAMPLE SIZE	108 participants (Students & Teachers)
DATA ANALYSIS	Statistical analysis performed using SPSS software

RESEARCH MODEL & VARIABLES

DEPENDENT VARIABLE

LEI: Language Education Inequality
Perceived disparity between urban & rural areas

GOAL

To measure the impact of these three AI factors on perceived educational inequality

INDEPENDENT VARIABLES

- **AIA:** AI Access (Availability of devices & internet)
- **AIU:** AI Utilization (Frequency & depth of using AI tools)
- **AIS:** AI Skills (Competence in using AI tools effectively)

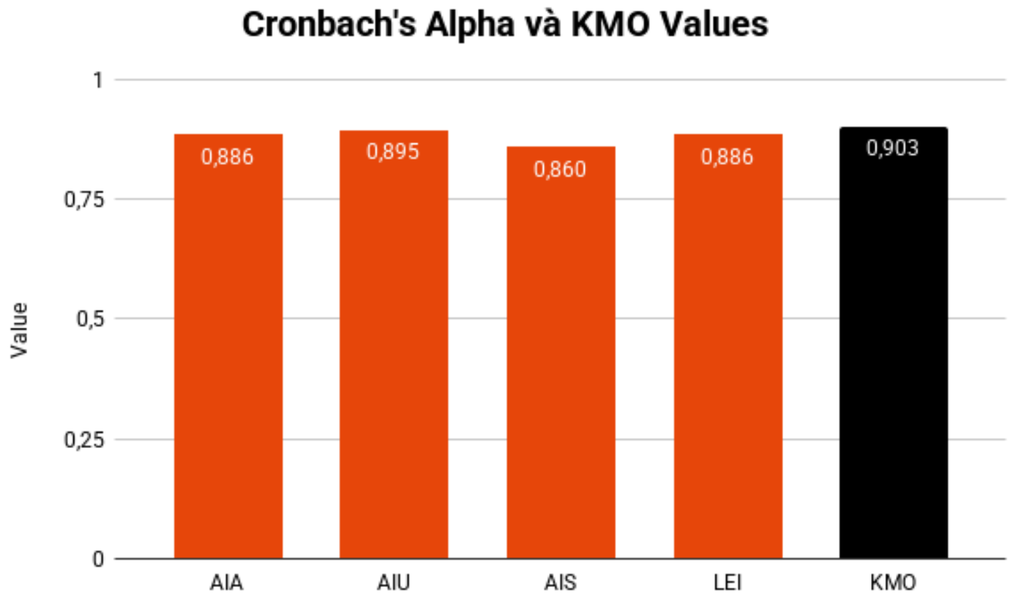
KEY FINDINGS: DATA RELIABILITY

01 **HIGH RELIABILITY**

Cronbach's Alpha for all constructs **> 0.86**

02 **STRONG VALIDITY**

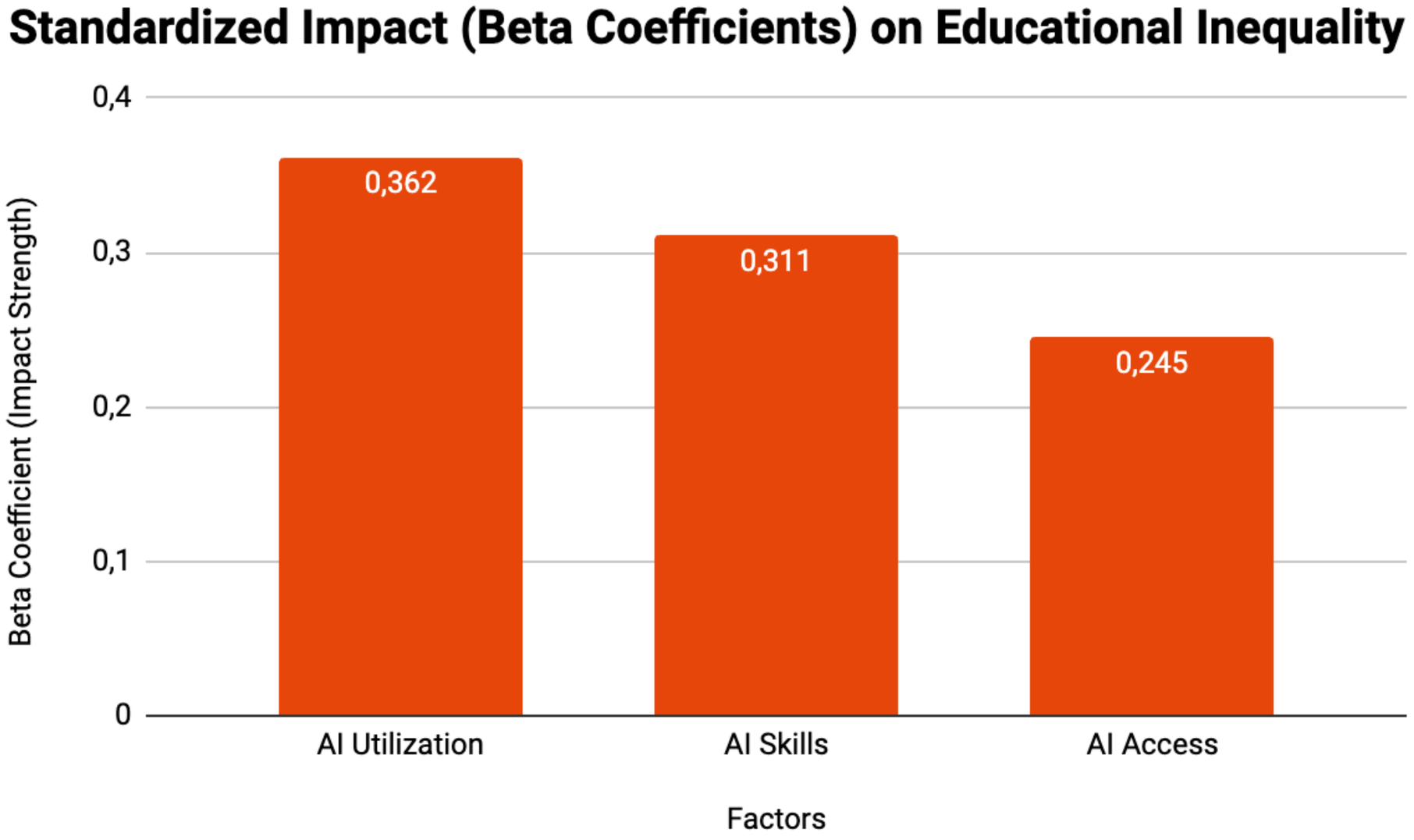
KMO Value = **0.903**



KEY FINDINGS: IMPACT ON EDUCATIONAL INEQUALITY

- **The model is a good fit:** (Sig. = .000)
- **Explanatory power:** The three AI factors explain **54.2%** (Adjusted R^2 = 0.542) of the variance in perceived inequality.
- **All three factors are significant:**

1. **AI Utilization** (**AIU**)**:** Strongest positive influence (β = .362, Sig. = .000)
2. **AI Skills** (**AIS**)**:** Strong positive influence (β = .311, Sig. = .000)
3. **AI Access** (**AIA**)**:** Positive influence (β = .245, Sig. = .002)


Standardized Impact (Beta Coefficients) on Educational Inequality
Beta Coefficient (Impact Strength)
0,4
0,3
0,2
0,1
0
0,362
0,311
0,245
AI Utilization
AI Skills
AI Access
Factors

03

CONCLUSION & RECOMMENDATIONS

a. **CONCLUSION**

THEORETICAL FRAMEWORK	Digital Inequality Theory (Van Dijk) + Educational Equity in AI.
OBJECTIVES	• Assess AI's effect on FL learning quality across urban vs. rural contexts. • Identify barriers to AI deployment in rural schools. • Propose strategies to narrow the education gap.
DESIGN & SAMPLE	Mixed methods (exploratory sequential). Pilot/initial quantitative **N = 108** (68.5% urban; 31.5% rural); plan to scale to 500 students + 50 teachers; follow-up qualitative interviews/focus groups.

a. **CONCLUSION**

KEY RESULTS	• Model fit: Adjusted R^2 = .542 → 54.2% of LEI variance explained by AIA, AIU, AIS. • All predictors positive & significant ($p < .01$). • Strongest effect: AIU (B = .315, β = .362), then AIS (B = .316, β = .311), then AIA (B = .232, β = .245). • No serious multicollinearity (VIF < 1.5).
SUBSTANTIVE TAKEAWAY	AI can reduce urban–rural FL inequality if it is actually used well (high AIU) and users have skills (AIS); without access (AIA), the gap persists or widens.
CONTEXTUAL NUANCE	Urban students benefit more due to stronger infrastructure and teacher digital skills; rural adoption lags despite positive attitudes.

b. **RECOMMENDATIONS**

1) FOR POLICY MAKERS (MOET, DOET)

- **Infrastructure first:** Expand reliable broadband to rural schools; include device subsidies and shared labs.
- **Equitable procurement:** National catalogue of low-bandwidth, offline-capable AI tools; negotiated edu licenses.
- **Funding mechanisms:** Rural-weighted grants; public–private partnerships with ISPs/EdTech.
- **Data governance:** Clear guidance on privacy, safety, bias; rural schools get templates & compliance support.

b. **RECOMMENDATIONS**

2) FOR SCHOOL LEADERSHIP (PRINCIPALS, BOARDS)

- **Whole-school AI plan**: Targets for access (AIA), use (AIU), skills (AIS); monitor with simple KPIs.
- **Scheduling & time**: Protected time for teachers to explore AI, co-plan lessons, and share practice.
- **Learning environment:** Create AI learning corners; ensure device rotation and after-school access.

b. **RECOMMENDATIONS**

3) FOR TEACHERS (ENGLISH & ICT)

- **Role shift:** From transmitter to coach/mentor guiding strategic AI use.
- **Classroom routines:**
  - AI-assisted pronunciation (e.g., speech feedback),
  - Adaptive reading/listening pathways,
  - Writing feedback with human-in-the-loop.
- **Skill building (AIS):** Micro-modules for students on prompt basics, evaluating AI feedback, and digital ethics.
- **Assessment:** Blend AI-supported practice with human-scored performance tasks; require learning logs to evidence genuine effort (reduces shortcutting).

b. **RECOMMENDATIONS**

4) FOR STUDENTS & FAMILIES (ESPECIALLY RURAL)

- **Low-bandwidth strategies:** Use offline packs, downloadable lessons, and asynchronous practice.
- **Self-regulation:** Weekly goal setting (SMART), learning journals, and progress dashboards.
- **Community support**: Parent workshops on AI's benefits/limits; peer tutoring across grades.

b. **RECOMMENDATIONS**

5) FOR EDTECH COMPANIES & ISPS

- **Design for constraints: Offline modes**, tiny updates, resilience to network drops,...
- **Localization:** Rural-accent speech models; culturally relevant content; Vietnamese interface & guidance.
- **Evidence & transparency:** Share **impact data by context** (urban vs. rural) and **pricing fairness**.

b. **RECOMMENDATIONS**

6) FOR RESEARCH & EVALUATION

- **Scale up to planned sample** (500 students, 50 teachers) to boost power & subgroup analysis.
- **Causal designs:** Quasi-experimental/stepped-wedge trials of offline AI bundles.
- **Mechanisms:** Test **mediators**/**moderators** (teacher digital skill, bandwidth quality, SES, school leadership).
- **Equity metrics:** Track **usage parity**, **learning gains parity**, and **cost per point gain** by region.

C. IMPLICATIONS

CONTRIBUTION	Identifies **where AI helps most** (use & skills) and **what blocks impact** (access & infrastructure), offering a concrete, staged roadmap for rural schools.
STRATEGIC SIGNIFICANCE	Aligns with **SDG 4**-quality and equitable education-by targeting the **urban–rural gap** in FL learning.
SUSTAINABLE IMPROVEMENT	Prioritize **AIU + AIS** (daily classroom use & skill), underpinned by **AIA** (infrastructure & devices) → durable, system-level narrowing of inequality.
CALL TO ACTION	Coordinated commitment from **government–schools–teachers–families–industry** to deliver **offline-capable, low-bandwidth AI**, robust teacher training, and fair funding models.

d. **LIMITATIONS & NEXT STEPS**

Current limitations:
Pilot N=108; self-report measures; cross-sectional bias.

Next steps:
Longitudinal tracking (2023–2025), richer rural sampling, cost-effectiveness analysis, qualitative case studies in low-infrastructure schools.

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THANK *You!*

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