

FROM EFL TO ESL IN VIETNAM:

Designing an AI-Driven Artificial English Environment Framework (AEEF) for scalable Classroom Practice

1 ABSTRACT

This study introduces the Artificial English Environment Framework (AEEF), an AI-supported instructional framework designed to expand meaningful speaking opportunities for Vietnamese EFL learners. Using a one-group pre-test–post-test quasi-experimental design, 83 Grade 11 students participated in a seven-week classroom intervention. Students practised speaking through AI conversation, received immediate formative feedback, and monitored progress using learning analytics. Speaking performance was assessed using CEFR descriptors with equivalent VSTEP levels for classroom reporting. Results indicated clear improvements in speaking proficiency, suggesting that AEEF is a practical and scalable framework for integrating generative AI into secondary English education.

2 OBJECTIVES

- Design and implement the AEEF framework to create an Artificial English Environment in secondary classrooms.
- Evaluate the impact of AEEF on students' English speaking proficiency.
- Examine the role of AI-supported formative assessment and learning analytics in improving learning outcomes.

3 RESEARCH QUESTIONS

- RQ1.** How does AEEF influence Vietnamese EFL students' speaking proficiency?
- RQ2.** How can conversational AI, formative assessment, and learning analytics be integrated into a scalable classroom framework?

4 THEORETICAL FRAMEWORK

AEEF is grounded in the following theories:

- Interaction Hypothesis** (Long, 1996) Meaningful interaction promotes language development.
- Output Hypothesis** (Swain, 2005) Producing language helps learners notice gaps.
- Sociocultural Theory** (Vygotsky, 1978) Learning occurs through social interaction and mediation.
- Formative Assessment** (Black & Wiliam, 1998) Feedback improves learning and guides instruction.
- Learning Analytics** (Siemens, 2013) Data informs decision-making and supports personalization.

5 METHODOLOGY

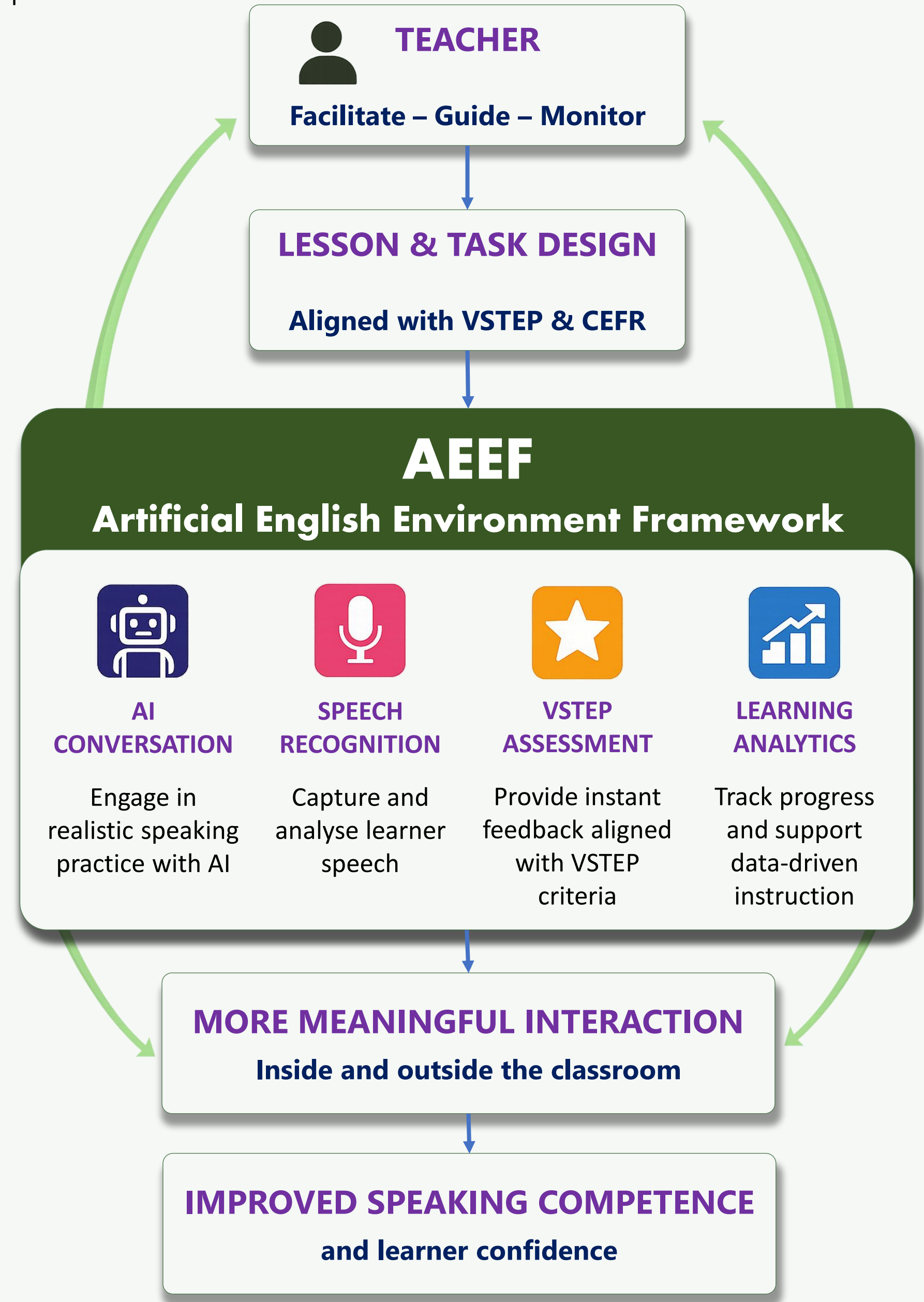
- Design** One-group pre-test–post-test quasi experimental design
- Participants** 83 Grade 11 students (Loc Ninh High School)
- Intervention** Seven-week implementation of AEEF integrated into speaking lessons
- Instruments**
- VSTEP-aligned speaking test
 - AI assessment rubric (CEFR)
 - Learning analytics (Google Sheets)
- Data Analysis** Descriptive statistics, paired sample t-test, qualitative analysis

11 SELECTED REFERENCE

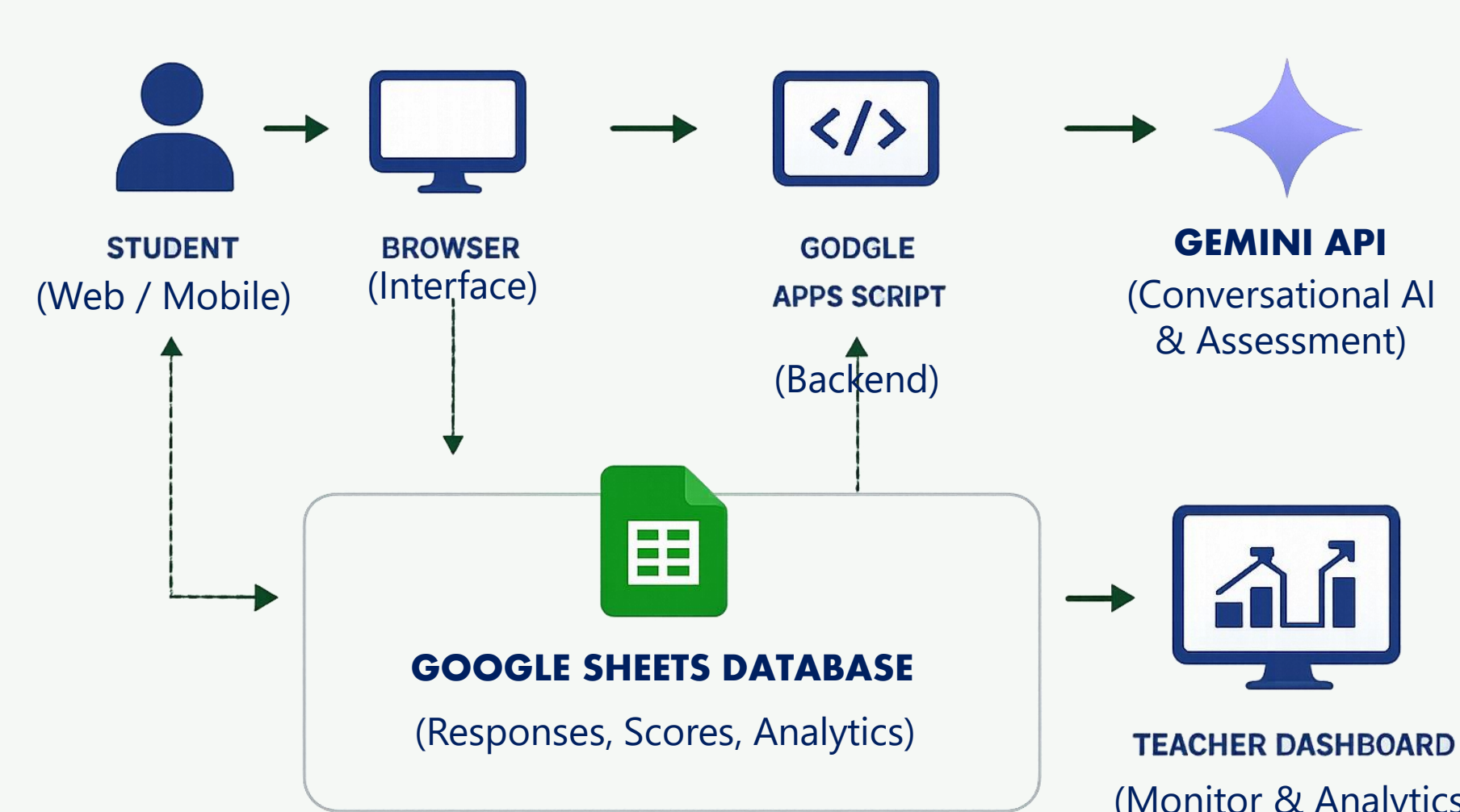
- Levy, M. (1997). Computer-assisted language learning: Context and conceptualization. Oxford University Press.
- Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), Handbook of second language acquisition (pp. 413–469). Academic Press.
- North, B., & Wiliam, D. (1998). Inside the black box: Raising standards through classroom assessment. Phi Delta Kappan, 80(2), 139–148.
- Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), Input in second language acquisition (pp. 235–253). Newbury House.
- UNESCO. (2023). Guidance for generative AI in education and research. UNESCO Publishing.
- https://www.researchgate.net/publication/396207461_Challenges_faced_by_EFL_students_at_a_university_in_Vietnam_in_developing_English_speaking_skills_and_pedagogical_strategies_used_by_instructors

6 THE AEEF FRAMEWORK

A scalable framework that transforms spaces into meaningful learning places

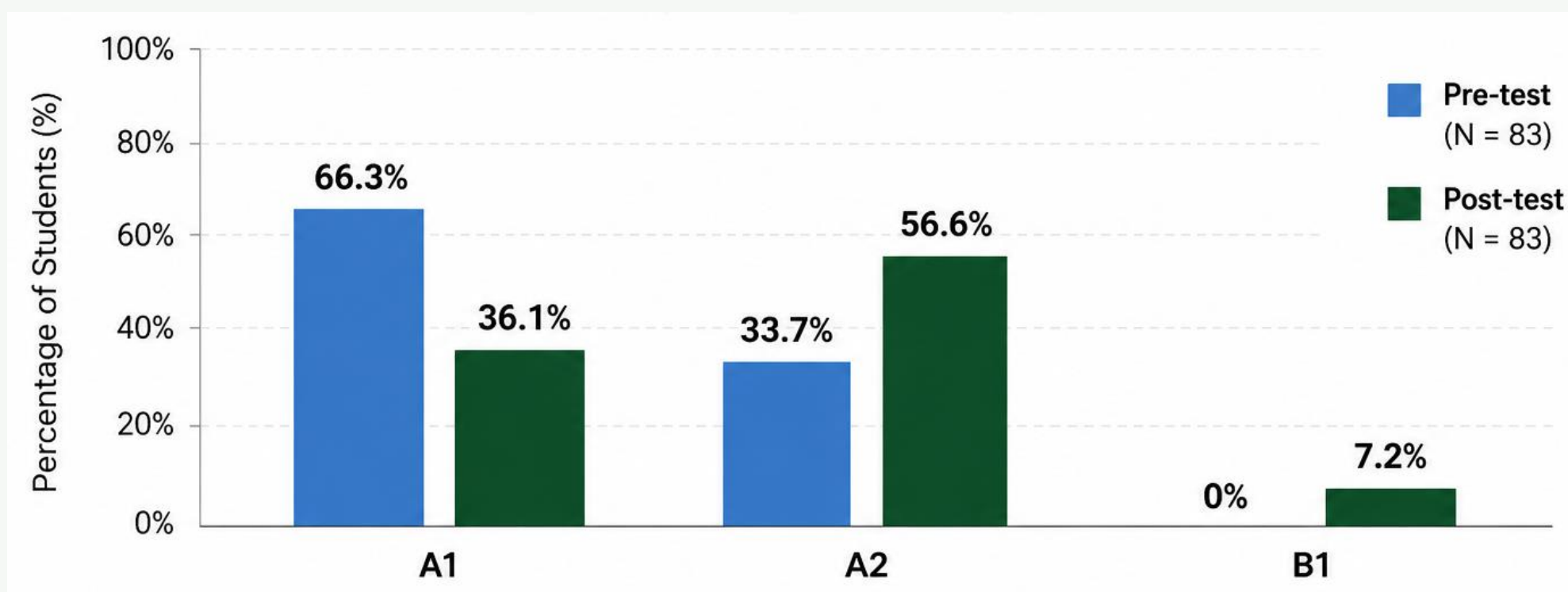


7 SYSTEM ARCHITECTURE



9 KEY FINDINGS: Speaking Proficiency

Changes in Speaking Proficiency (CEFR Levels) for Pre-test and Post-test



After the seven-week intervention, the proportion of students at CEFR A1 decreased substantially, while the percentage reaching CEFR A2 increased markedly. Three students achieved CEFR B1, whereas none reached this level in the pre-test. These findings indicate positive gains in speaking proficiency after implementing the AEEF framework.

CEFR – VSTEP CONVERSION (REFERENCE)					
CEFR	A1	A2	B1	B2	C1
VSTEP	3.5 – 4.0	4.0 – 5.0	5.5 – 6.5	6.5 – 8.0	8.5 – 10

12 ACKNOWLEDGEMENT

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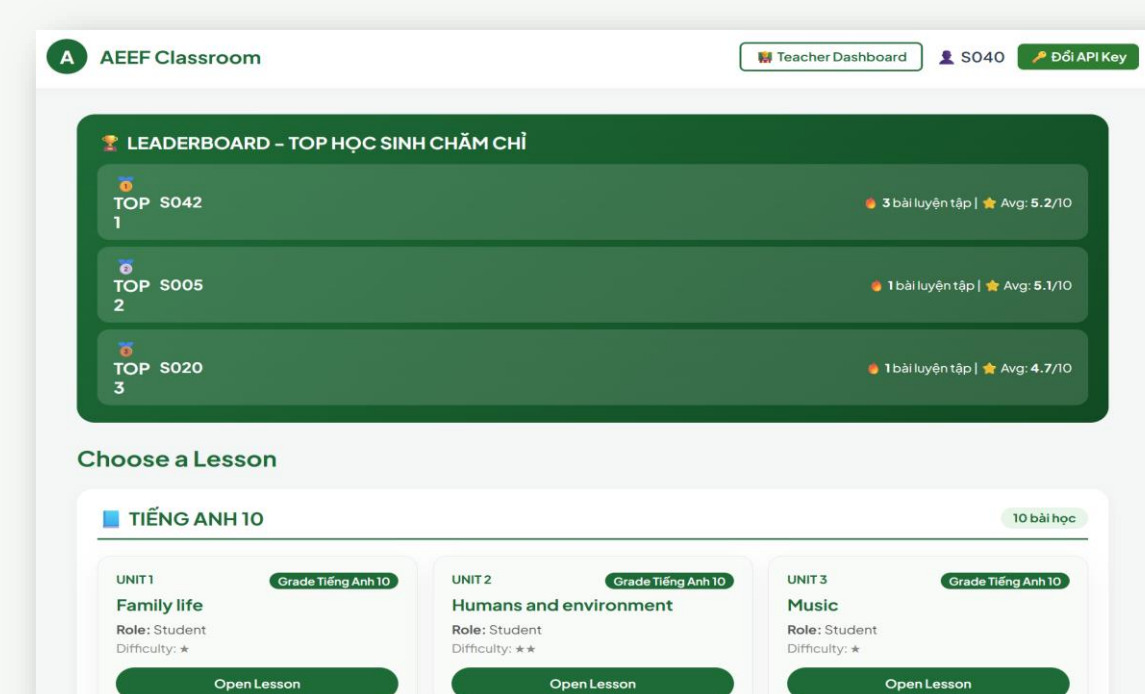
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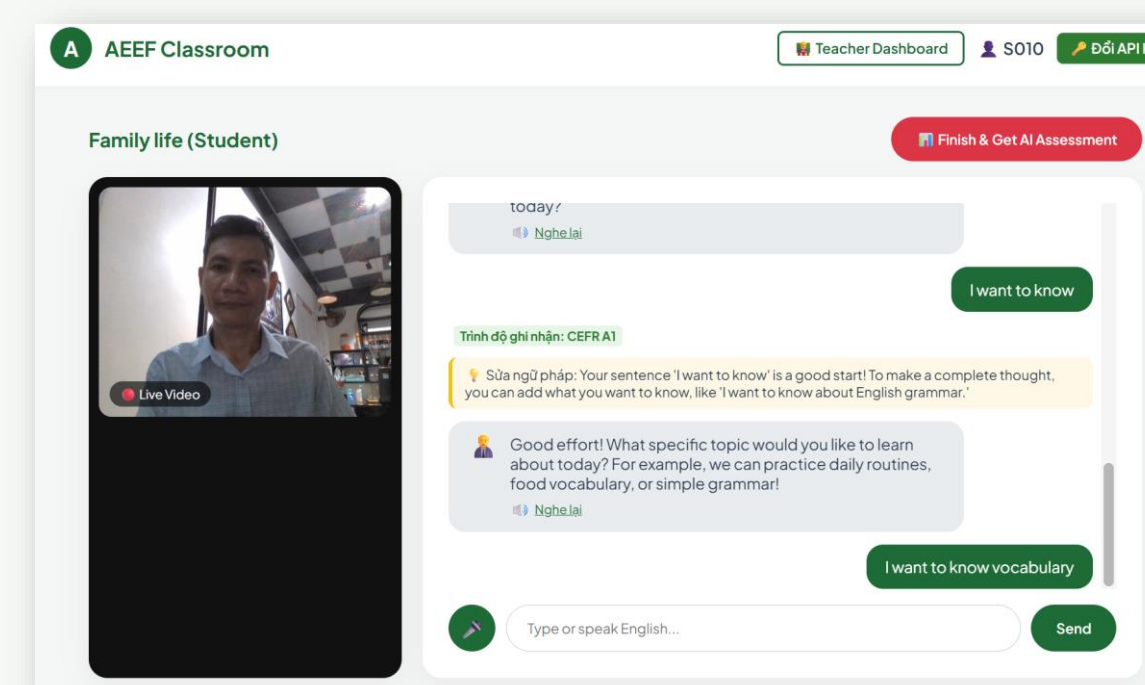
8 AEEF IN ACTION: SYSTEM INTERFACES

8.1 STUDENT DASHBOARD



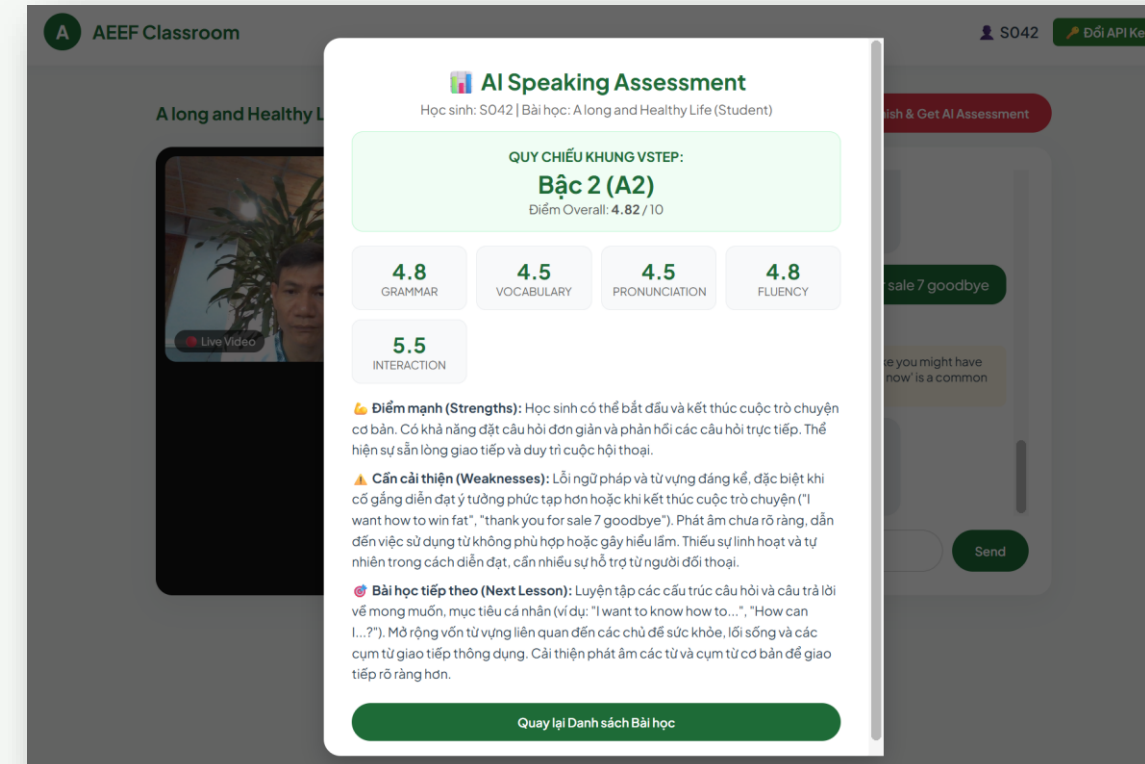
- Leaderboard
- Lesson library
- Student progress
- Recent activity

8.2 SPEAKING INTERFACE



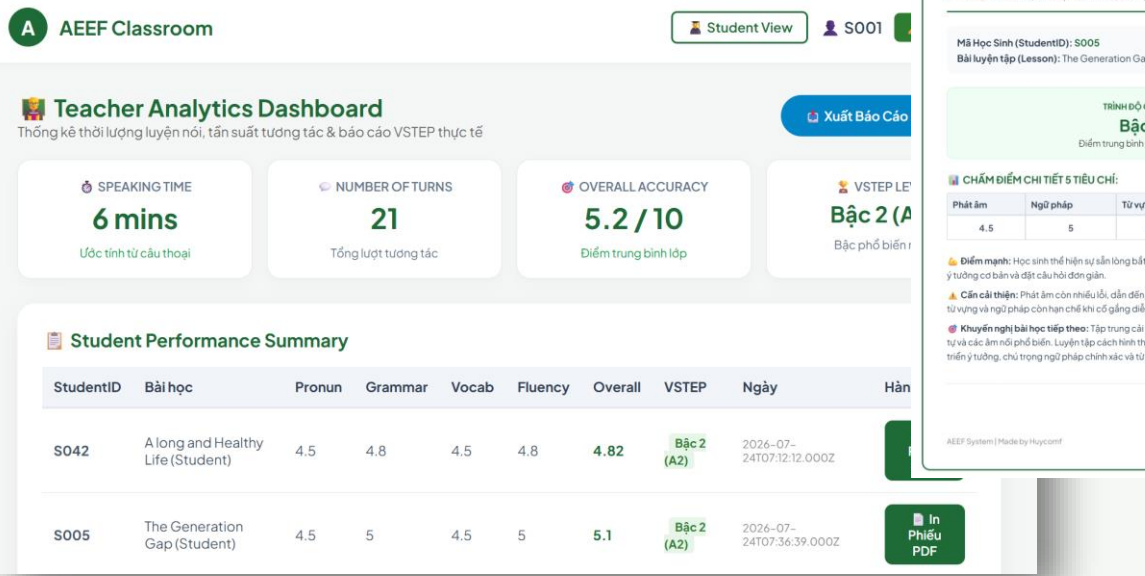
- AI conversation
- Real-time speech input
- Natural interaction
- Lesson Knowledge Recognition
- Auto-correction and suggestions

8.3 AI SPEAKING ASSESSMENT



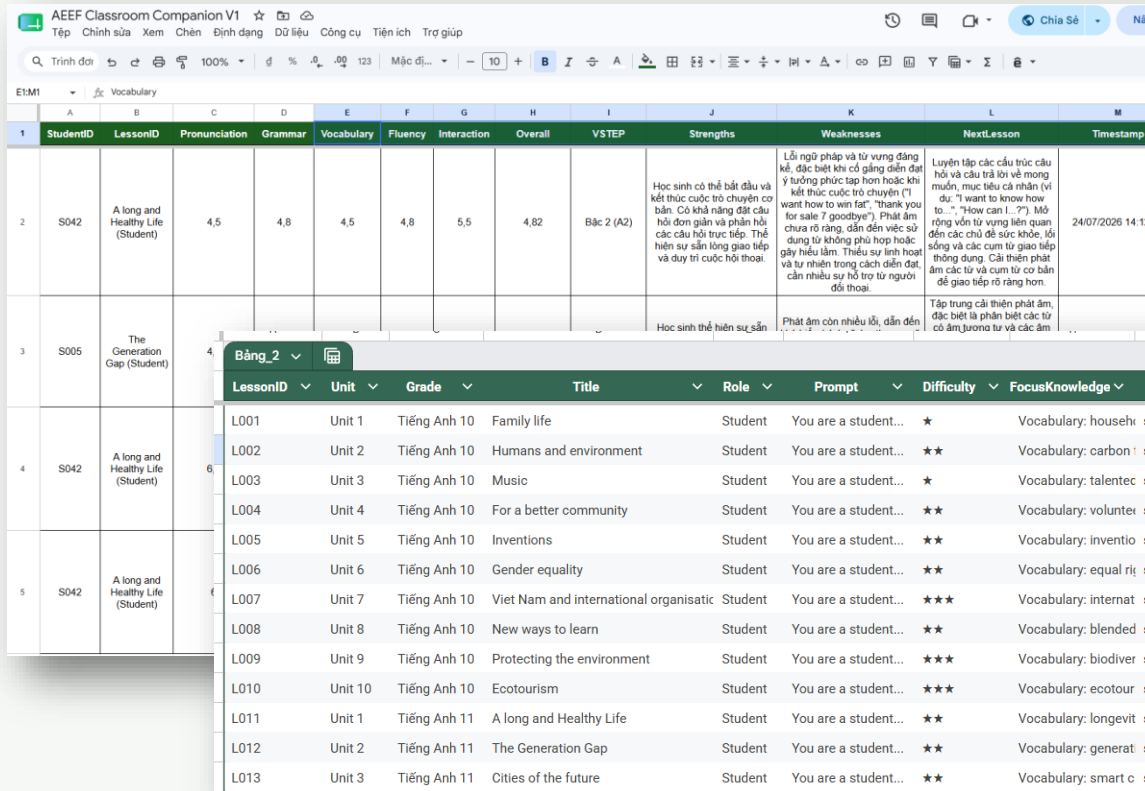
- VSTEP-aligned assessment
- Detailed feedback
- Next-lesson suggestions

8.4 TEACHER DASHBOARD



- Password-Protected Teacher Access
- Class & Student Analytics
- CEFR-Based Assessment
- PDF reports & Excel/CSV data export

8.5 LEARNING ANALYTICS (Google Sheets)



- Automatic scoring
- Data tracking
- Teacher analytics
- Progress monitoring
- Lesson Knowledge Focus

10 PEDAGOGICAL IMPLICATIONS

- AEEF creates an Artificial English Environment that provides abundant, meaningful speaking practice beyond the classroom.
- AI conversation and instant feedback help learners notice language gaps and improve speaking accuracy.
- Learning analytics enables teachers to monitor progress, personalize instruction, and provide targeted support.
- CEFR-based assessment with VSTEP reference provides a locally relevant framework for reporting learners' speaking performance.
- AEEF is scalable, affordable, and adaptable for Vietnamese secondary schools.

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