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MINISTRY OF EDUCATION AND TRAINING NATIONAL FOREIGN LANGUAGES PROJECT

ID: # 2108 - AIM: AN INTEGRATED AI, MIND MAPPING, EXPLICIT INSTRUCTION MODEL FOR ENHANCING ENGLISH VOCABULARY LEARNING EFFICIENCY

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INTRODUCTION

In recent years, educational reform in Viet Nam has emphasised competency-based learning and digital transformation, increasing the need for more effective English language teaching. The Ministry of Education and Training's Digital Competency Framework (2025) also highlights the ethical and responsible use of AI in education. As vocabulary is essential for reading, communication, and language proficiency, traditional memorisation-based approaches are no longer sufficient. A survey at Tuy Phuoc No. 3 High School (September 2025) found that 74.9% of students relied on rote memorisation, while teachers reported weak English foundations among learners. In response, this study developed the **AIM Model**, integrating **Artificial Intelligence (AI), Explicit Instruction (I), and Mind Mapping (M)** into a unified approach to improve Grade 12 students' vocabulary learning through a more structured, engaging, and effective instructional design.

THEORETICAL FRAMEWORK

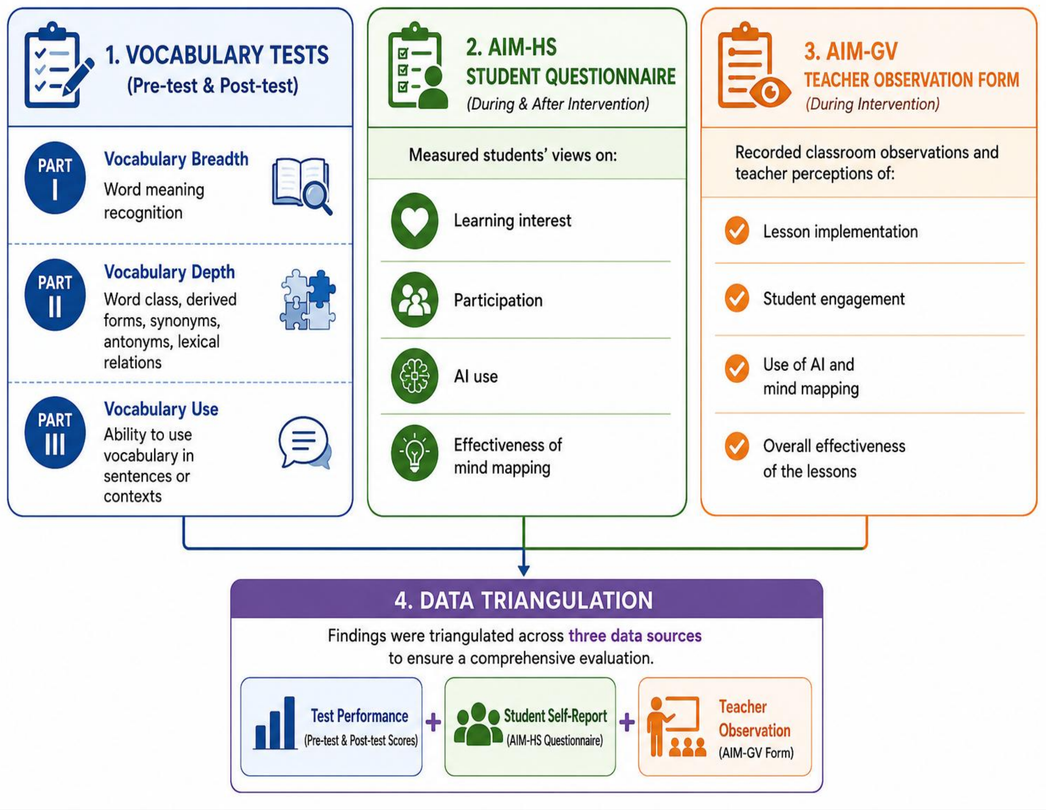
The AIM Model integrates three complementary pedagogical components to enhance English vocabulary learning. First, Artificial Intelligence (AI) provides personalized lexical input, authentic examples, immediate feedback, and opportunities for independent learning. Second, Mind Mapping facilitates meaningful organization of vocabulary by connecting words through semantic relationships, thereby strengthening memory and retention. Third, Explicit Instruction provides systematic teacher guidance through modeling, explanation, scaffolded practice, and corrective feedback.

Grounded in Meaningful Learning Theory (Ausubel, 1968), Mind Mapping Theory (Buzan & Buzan, 2006), and Vocabulary Learning Theory (Nation, 2001, 2022), the AIM Model assumes that vocabulary learning becomes more effective when learners actively construct, organize, and apply lexical knowledge. Rather than functioning independently, the three components work synergistically: AI expands vocabulary input, mind mapping structures knowledge, and explicit instruction supports accurate understanding and application, leading to improved vocabulary breadth, depth, contextual use, and learner engagement.

RESEARCH QUESTIONS

1. Is the AIM Model suitable for Grade 12 students at Tuy Phuoc No. 3 High School?
2. How does this model affect students' vocabulary development?
3. Does the model help improve students' learning interest, active participation, and ability to use vocabulary?

METHODOLOGY



KEY FINDINGS

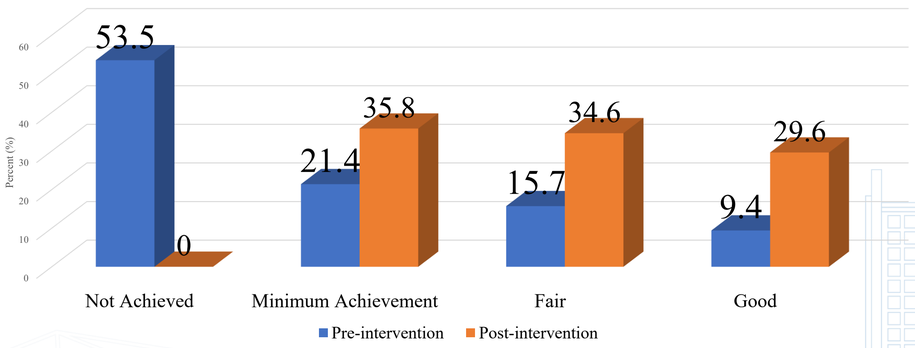
Table 7. Comparative results of pre-test and post-test assessments

Assessment Content	Maximum Score	Pre-intervention (Mean ± SD)	Post-intervention (Mean ± SD)	Difference	Increase (%)
Vocabulary Breadth (VR)	4.0	1.74 ± 0.70	2.95 ± 0.37	1.21	69.46
Vocabulary Depth (VS)	3.0	1.76 ± 0.69	2.21 ± 0.29	0.45	25.29
Vocabulary Use (VU)	3.0	0.85 ± 0.36	2.21 ± 0.29	1.36	159.76
Total Score	10.0	**4.36 ± 1.74**	**6.45 ± 0.92**	3.04	69.76

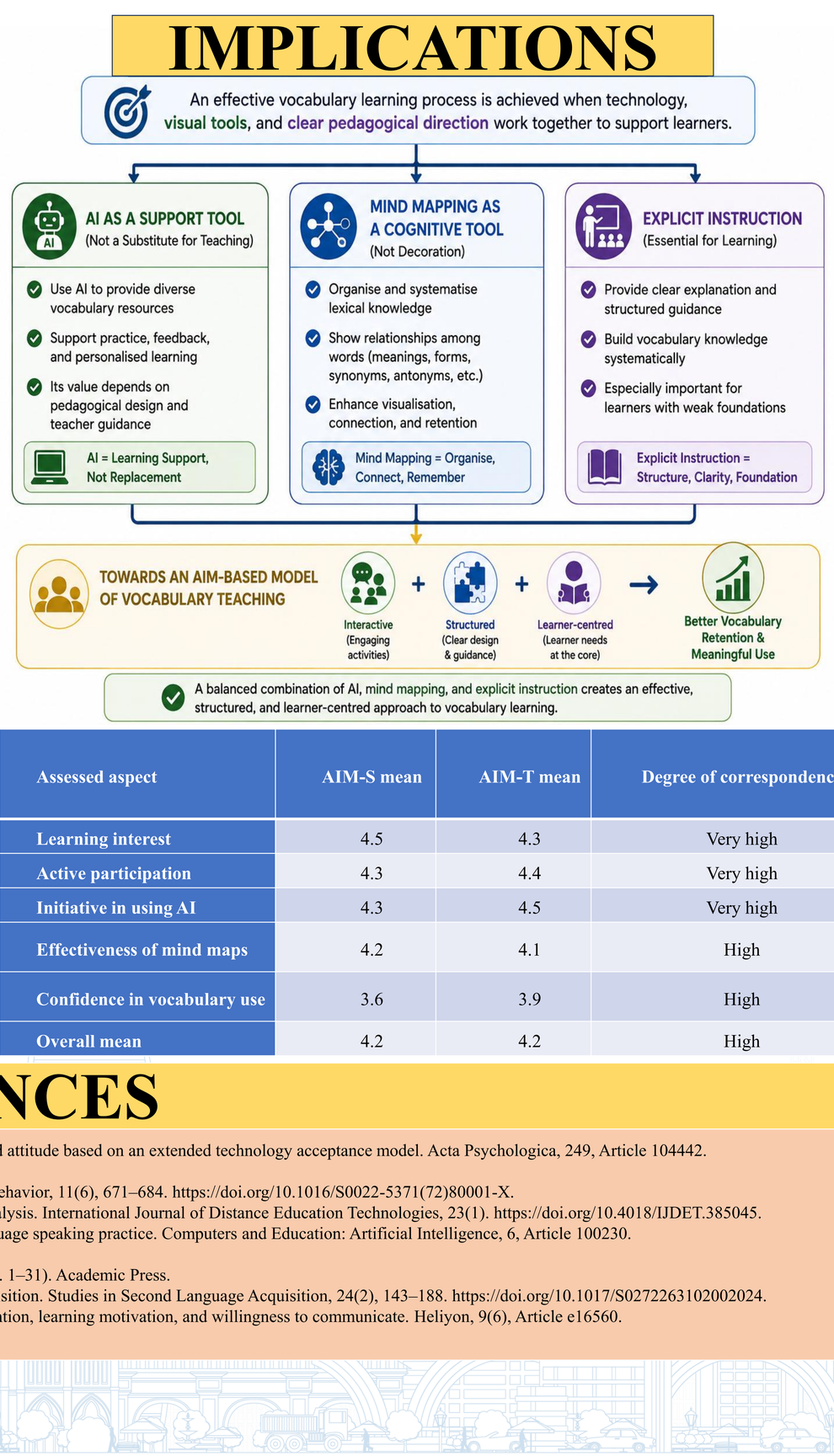
Table 8. Distribution of students by levels of effectiveness: a comparison of pre- and post-intervention results

Effectiveness Level	Score Range (out of 10)	Pre-intervention (n)	Pre-intervention (%)	Post-intervention (n)	Post-intervention (%)
Not Achieved	Below 5.0	85	53.5	0	0.0
Minimum Achievement	5.0-6.4	34	21.4	57	35.8
Fair	6.5-7.9	25	15.7	55	34.6
Good	8.0-10.0	15	9.4	47	29.6
Total		159	100	159	100

The distribution of students' vocabulary proficiency was assessed before and after the intervention.



IMPLICATIONS



Assessed aspect	AIM-S mean	AIM-T mean	Degree of correspondence
Learning interest	4.5	4.3	Very high
Active participation	4.3	4.4	Very high
Initiative in using AI	4.3	4.5	Very high
Effectiveness of mind maps	4.2	4.1	High
Confidence in vocabulary use	3.6	3.9	High
Overall mean	4.2	4.2	High

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