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The Relationship Between Chinese Vocabulary Memorization Strategy and Teaching and Learning Management Among Chinese Language Students at the Faculty of Letters, National University of Laos

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Abstract

This study aimed to: (1) identify the Chinese vocabulary memorization Strategy used by students in the Department of Chinese Language, Faculty of Letters, National University of Laos; and (2) analyze the relationship between vocabulary memorization Strategy and teaching-learning management. A quantitative research approach was employed using a structured questionnaire administered to 217 Chinese-major students. Data were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Binary Logistic Regression analysis was conducted, with results reported using B coefficients, Wald statistics, significance levels (p-values), odds ratios [Exp(B)], and 95% confidence intervals.

The findings revealed that only the Identify (IDEN) and Self-Test (STST) Strategy demonstrated statistically significant relationships with teaching and learning management outcomes. The IDEN method, which involves associating new vocabulary with familiar words or concepts, showed significant positive relationships with the TCR, TLM, and VSM dimensions. In contrast, STST, which involves self-assessment using vocabulary flashcards, showed significant negative relationships with Learning Management, Content and Learning Materials, Assessment and Evaluation, and Vocabulary Memorization Skills.

Keywords: Chinese Vocabulary Memorization; Vocabulary Learning Strategy; Chinese Language Students; Teaching and Learning Management; Chinese as a Foreign Language.

1. Introduction

Vocabulary knowledge is widely regarded as a fundamental component of language proficiency because it enables learners to understand and convey meaning across diverse communicative contexts (Alqahtani, 2015; Huang, 2022; Irsyad, 2019). As an essential element of communication, vocabulary learning is closely integrated with the development of reading, writing, listening, and speaking skills (Win et al., 2021). Since word meanings are often context-dependent, vocabulary knowledge supports both language comprehension and production and is therefore considered a key determinant of overall language competence (Yang & Dai, 2012). Vocabulary learning and teaching constitute a crucial aspect of second and foreign language acquisition because lexical knowledge underpins learners' communicative competence and overall language proficiency (Schmitt, 2000). Learners with limited vocabulary often encounter difficulties in interpreting messages and expressing ideas accurately. Consequently, vocabulary competence is recognized as a central aspect of communicative ability, and inadequate vocabulary knowledge may hinder language learning and academic progress (Alqahtani, 2015; Rohmatillah, 2017). Vocabulary is a multidimensional construct that includes words recognized through reading, understood through meaning, comprehended through listening, and used within academic contexts (Win et al., 2021). These dimensions collectively contribute to learners' communicative and academic development.

China's increasing economic and geopolitical influence has increased international interest in Mandarin Chinese. As a result, Chinese has become an important foreign language for educational, professional, and intercultural purposes. Learning Chinese not only enhances communication skills but also facilitates cross-cultural understanding and economic opportunities in an increasingly globalized world (Odinye & Odinye, 2013).

Despite the growing demand for Chinese language education, effective teaching and learning management remain essential for helping students acquire and apply language knowledge. Vocabulary memorization, in particular, continues to be one of the most persistent challenges in Chinese language learning because it underpins the development of all four language skills.

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Many learners struggle to retain and use vocabulary effectively, limiting their overall language proficiency.

In Laos, interest in Chinese language learning has increased substantially following the expansion of Lao–China educational and economic cooperation, particularly after the opening of the Lao–China Railway in 2021. To enhance educational quality and international engagement, higher education institutions have increasingly embraced internationalization initiatives (Sisavath, 2026). Although Lao remains the official language of instruction, Chinese language education has expanded through partnerships with Chinese universities and Confucius Institutes, supported by growing labor-market demand for Chinese language skills (Vientiane Times, 2024).

The increasing importance of Chinese as a second and foreign language has generated extensive research on language learning strategies, pedagogy, language policy, assessment, and teacher education (Chen, 2013; Gong et al., 2018; Han, 2014; Zhao, 2011). Nevertheless, limited evidence exists regarding the relationship between Chinese vocabulary memorization Strategy and teaching-learning management among university students in Lao PDR.

Preliminary observations in the Department of Chinese Language, Faculty of Letters, National University of Laos, indicate that many students experience difficulties in vocabulary retention. Common problems include forgetting newly learned words, confusion between Chinese characters, Pinyin, and meanings, inaccurate character writing, limited vocabulary application in context, and heavy reliance on rote memorization. Teachers also reported insufficient review habits, inconsistent practice, and a lack of effective memorization Strategy among students.

These challenges suggest that vocabulary learning difficulties are influenced by multiple factors, including inadequate review, limited opportunities for practical use, and ineffective learning techniques. Addressing these issues requires teaching approaches that integrate vocabulary learning with meaningful language practice across reading, writing, listening, and speaking activities.

Given the importance of vocabulary acquisition in Chinese language learning, this study investigates the vocabulary memorization Strategy used by students in the Department of Chinese Language, Faculty of Letters, National University of Laos, and examines their relationship with teaching-learning management. Specifically, the study aims to: (1) identify the Chinese vocabulary memorization Strategy employed by students and (2) analyze the relationship between these Strategy and the dimensions of teaching-learning management.

1. Materials and Strategy

2.1 Population and Sample Group

The population of this study based on Enrollment statistics indicated that 473 students were enrolled in Years 2–4 of the Chinese Language Department during the 2026 academic year (Faculty of Letters [FoL], 2026). The required sample size was determined using the formula proposed by Yamane (1973) for a finite population, with a margin of error of 0.05 and a confidence level of 95%**,** resulting in a calculated sample size of 217 respondents.

The sample included students from Years 2 to 4, as these students had completed at least one academic year of study during the 2025-2026 academic year and were therefore considered capable of providing informed responses relevant to the research objectives. In contrast, first-year students admitted in the 2026 academic year were excluded from the study because they had not yet accumulated sufficient academic experience within the program.

A cluster sampling technique was employed to select participants, with clusters defined according to academic year level. Data were collected from students who were officially enrolled and actively studying during October 2026.

2.2 Research Instrument

A questionnaire was used as the primary instrument for data collection. The questionnaire was developed based on a review of relevant literature and previous studies. The content of the questionnaire was divided into four parts as follows: Part 1: General Information of Respondents: This section consisted of closed-ended questions in a multiple-choice format designed to collect respondents' demographic information, including gender, age, year of study, marital status, average monthly income, and place of residence. Part 2: Chinese Vocabulary Learning Strategy

This section consisted of closed-ended questions regarding the Chinese vocabulary learning Strategy employed by students in the Chinese Language Department. Part 3: Importance of Vocabulary Learning Strategy Affecting Chinese Language Teaching and Learning based on the LINCS Vocabulary Strategy. The questionnaire demonstrated excellent internal consistency reliability (Cronbach's $\alpha = 0.986$). This section assessed the level of importance of vocabulary learning Strategy that influence the teaching and learning of Chinese among students in the Chinese Language Department, Faculty of Letters, National University of Laos. A five-point Likert Scale was used to measure respondents' opinions. The content was based on the LINCS Vocabulary Strategy developed by Ellis (1998), comprising five dimensions: 1) Teacher (TCR); 2) Learning Management (LM); 3) Content and Instructional Materials (CIM); 4) Assessment and Evaluation (AE); and 5) Vocabulary Memorization Skills (VMS). Part 4: Additional Comments: this section consisted of open-ended questions that allowed respondents to provide additional opinions and suggestions.

2.3 Data Collection

The researcher collected data through questionnaires administered to students in Years 2-4 of the

Chinese Language Department, Faculty of Letters, National University of Laos.

2.4 Research Design

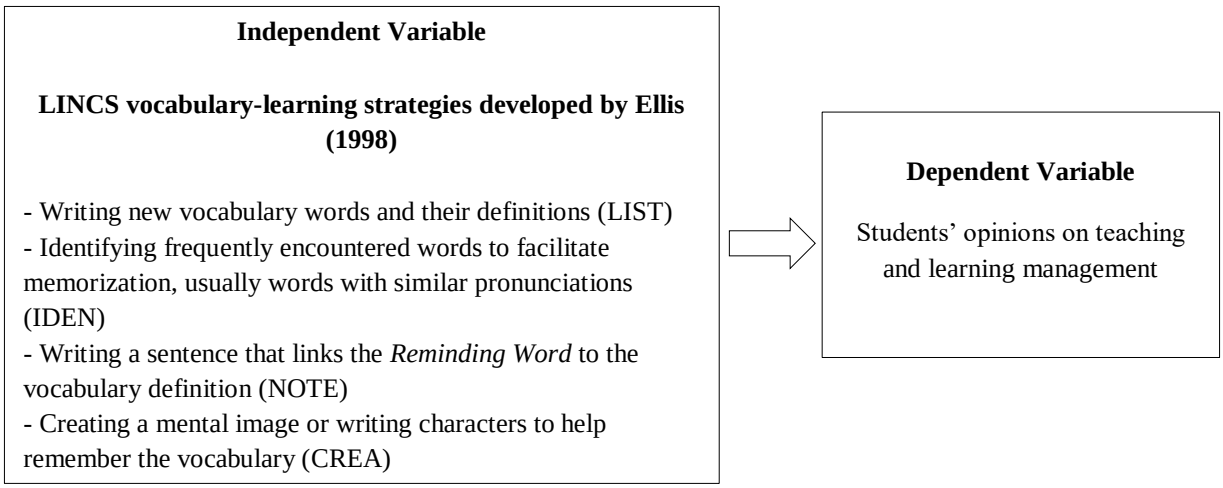
The researcher employed a survey research method to investigate the opinions of students enrolled in Years 2-4 of the Chinese Language Department, Faculty of Letters, National University of Laos. The total population consisted of 473 students, while the calculated sample size was 217 respondents. A total of 217 complete questionnaires were returned and used for analysis.

2.5 Research Hypothesis

The study tested the hypothesis that Chinese vocabulary memorization Strategy based on the LINCS framework are significantly associated with students' perceptions of teaching-learning management.

Hypothesis

There is a statistically significant relationship between Chinese vocabulary memorization Strategy based on the LINCS framework and students' perceptions of teaching-learning management.



2.6 Data Analysis

Binary Logistic Regression Analysis Model

The model used to analyze the effect of Chinese vocabulary learning through memorization Strategy on overall teaching and learning management was based on the Binary Logistic Regression Analysis model, as follows:

Model:

$$P(Y=1)=\frac{1}{1+e^{-(\beta_0+\beta_1X_1+\beta_2X_2+\cdots+\beta_kX_k)}}$$

$$P(Y=1)=\frac{e^{(\beta_0+\beta_1X_1+\cdots+\beta_5X_5)}}{1+e^{(\beta_0+\beta_1X_1+\cdots+\beta_5X_5)}}$$

or

$$\ln\left(\frac{P}{1-P}\right)=\beta_0+\beta_1\text{LIST}+\beta_2\text{IDEN}+\beta_3\text{NOTE}+\beta_4\text{CREA}+\beta_5STST$$

Where:

- P = Probability that a student has a positive opinion toward teaching and learning management.
- β_0 = Constant term (intercept).
- β_1, β_2, ..., β_k = Coefficients of the independent variables.
- X_1, X_2, ..., X_k = Independent variables.

Odds Ratio (OR) indicates the change in the odds of the outcome occurring when the independent variable increases by one unit:

OR > 1: The independent variable positively influences the probability of achieving a Good/Very Good level of teaching and learning management.

OR < 1: The independent variable negatively influences the probability of achieving a Good/Very Good level of teaching and learning management.

OR = 1: The independent variable has no influence on the probability of achieving the outcome.

3. Results

3.1 Identify Chinese vocabulary memorization Strategy used by students in the Department of Chinese Language, Faculty of Letters, National University of Laos

Demographic Profile

The majority of respondents were female students (151 individuals), aged 20-21 years (121 individuals), studying in Year 3 of the regular program (125 individuals), Most reported a monthly income between LAK 1,000,001 and 5,000,000 (155 individuals) and lived with their parents (76 individuals).

Table 1: Demographic Profile of Respondents

	GEN	AGE	GRADE	STATUS	INCOME	LIVING
	Female	20-21	Year 3 (regular Course)	Regular Course	1,000,000 – 5,000,000 LAK	Parents
Male	66	27	25	38	37	17

Female	151	94	65	87	118	59

Experiences in Learning Chinese Strategy

Regarding their Chinese language learning experience, students primarily memorized vocabulary through the use of Chinese language learning applications (Apps) and applied the LINC learning technique, particularly the Strategy of listing new vocabulary words and their definitions (List). Overall, students' basic Chinese language proficiency was at a low level, particularly in the areas of speaking, writing, listening, and reading skills .

Table 2: Students' Experiences with Chinese Vocabulary Learning Methods (Multiple Choices)

No.	students 'learning Chinese Vocabulary Learning Strategy	Freq.	%
1	Using Chinese language learning Apps	199	12.8
2	Using flashcards	197	12.7
3	Repetitive writing for Chinese character memorization	194	12.5
4	Learning through vocabulary games	180	11.6
5	Learning via YouTube or online channels	175	11.3
6	Learning through spaced repetition systems	153	9.8
7	Learning from other Strategy	142	9.1
8	Studying Chinese beforehand/supplementary courses prior to entering the Chinese language major	110	7.1
9	Having taken a Chinese language proficiency test	84	5.4
9	Learning through classroom teachers	84	5.4
10	Memorizing from textbooks and note-taking	36	2.3
	Total	**1,554**	**100.0%**

Table 3: Students' Use of LINCS Vocabulary Learning Methods

No.	students 'learning Chinese Vocabulary Learning using LINCS Strategy	N	Percentage%
1	L – List the parts (write the new word and its definition)	147	39.2
2	I – Identify a Reminding Word (a familiar word that sounds like the new word)	102	27.2
3	N – Note a LINCing Story (create a short story connecting the reminding word and the meaning)	48	12.8
4	C – Create a LINCing Picture (draw or visualize the story)	46	12.3
5	S – Self-Test (practice recalling the meaning using the story and picture)	32	8.5
	Total	375	100.0%

Table 4: Shown mean and Standard Deviation for Students' Chinese four language Skills

No.	Four Language Skills	N	$\bar{X}$	S.D	Result
1	Reading	217	2.00	0.40	Low

2	Listening	217	2.16	0.47	Low
3	Writing	217	2.18	0.56	Low
4	Speaking	217	2.20	0.51	Low
	Total	217	2.14	0.40	Low

3.2. Relationship of teaching - learning management Levels in the Department of Chinese Language, Faculty of Letters, National University of Laos

1) Teacher Dimension (TCR)

Overall, the teacher Dimension was rated at a high level. Key aspects included teachers' strong knowledge and understanding of the subject content, their willingness to provide opportunities for students to ask questions and exchange ideas, their ability to effectively transmit knowledge, their appropriate organization of learning activities in accordance with the course content, and their preparedness and lesson planning throughout the teaching process (Table 5).

Table 5: Shown Level of Opinion of Teacher Dimension

No.	Teacher (TCR)	N	$\bar{X}$	S.D	Level of Opinion
1	The teacher is well prepared and plans the teaching and learning process effectively	217	4.06	0.92	High
2	The teacher has a thorough knowledge and understanding of the subject matter	217	4.16	0.85	High
3	The teacher is capable of effectively transferring knowledge to learners	217	4.13	0.84	High
4	The teacher organizes learning activities appropriately in alignment with the course content	217	4.05	0.84	High
5	The teacher provides a variety of learning activities	217	3.89	0.95	High
6	The teacher encourages learners to ask questions and exchange knowledge and ideas with one another	217	4.14	0.88	High
	Total	**217**	**4.07**	**0.76**	**High**

2) Learning Management (LM)

Overall, the learning management dimension was rated at a high level. Students reported that learning activities encouraged active participation, created a lively classroom atmosphere, facilitated understanding of lesson content and vocabulary retention, promoted self-expression, critical thinking, and active engagement, stimulated enthusiasm for learning, and fostered creativity.

Table 6: Shown Level of Opinion of Learning Management (LM) Dimension

No	Learning Management (LM) Aspect	N	$\bar{X}$	S.D	Level of Opinion
1	The learning management approach motivates students to become enthusiastic and actively engaged in learning	217	3.98	0.82	High
2	The learning management approach creates a lively and dynamic classroom atmosphere	217	4.03	0.79	High
3	The learning management approach helps students understand the lesson content and develop vocabulary memorization skills	217	4.00	0.80	High
4	The learning management approach encourages all students to participate actively in learning activities	217	4.03	0.78	High
5	The learning management approach enables students to express themselves confidently, think critically, and take initiative in learning	217	3.99	0.80	High
6	The learning management approach fosters students' creativity and innovative thinking	217	3.96	0.78	High
	Total	**217**	**4.00**	**0.70**	**High**

3) Content and Instructional Materials

Overall, the content and instructional materials dimension was rated at a high level. Respondents indicated that instructional content was systematically organized and effectively connected prior knowledge with new knowledge. Teaching Strategy progressed from basic to advanced levels and from simple to more complex concepts. Learning materials were well designed in terms of layout, font size, and color, making them easy to read. The lesson content was appropriate to students' proficiency levels, and various exercises were provided to facilitate lesson review and vocabulary retention. Furthermore, the instructional design encouraged independent learning.

Table 7: Shown Level of Opinion of Content and Learning Materials Dimension (CLM) Dimension

No	Content and Instructional Materials	N	$\bar{X}$	S.D	Level of Opinion
1	A variety of exercises help learners review lessons and retain vocabulary effectively	217	3.98	0.80	High
2	The instructional design enables learners to study and learns independently	217	3.98	0.73	High
3	The lesson content is appropriate for the learners' level of knowledge and proficiency	217	4.01	0.82	High
4	The teaching approach progresses systematically from basic to advanced concepts and from simple to more complex topics	217	4.08	0.79	High
5	The instructional content is presented in a coherent sequence, linking prior knowledge with new learning	217	4.09	0.76	High
6	The layout of instructional materials, including document organization, font size, and color scheme, is well-structured and easy to read	217	4.05	0.83	High
	Total	**217**	**4.03**	**0.67**	**High**

4) Assessment and Evaluation

Overall, the assessment and evaluation dimension was rated at a high level. Students perceived that assessment Strategy were diverse and fair. The content of pre-tests and post-tests was consistent with the instructional content. The level of difficulty and the number of test items in both pre-tests and post-tests were appropriate. In addition, assessment practices provided opportunities for students to participate actively in the evaluation process.

Table 8: Shown Level of Opinion of Assessment and Evaluation (AE) Dimension

No	Assessment and Evaluation (AE)	N	$\bar{X}$	S.D	Level of Opinion
1	The assessment and evaluation Strategy used in learning are diverse and varied	217	3.94	0.84	High
2	The assessment and evaluation of learning are fair and impartial	217	4.03	0.79	High
3	The assessment and evaluation process provides opportunities for learners to participate actively	217	4.05	0.81	High
4	The instructional content is aligned with both the pre-test and post-test assessments	217	4.00	0.87	High
5	The level of difficulty of the pre-test and post-test is appropriate	217	4.00	0.78	High
6	The number of items in the pre-test and post-test is appropriate and suitable for assessing learners' achievement	217	3.99	0.84	High
	Total	**217**	**4.00**	**0.71**	**High**

5) Vocabulary Memorization Skills

Overall, vocabulary memorization skills were rated at a high level. Students reported that listening to classmates' presentations helped improve vocabulary retention. Teachers' encouragement of independent vocabulary writing and questioning activities also enhanced memorization. The Strategy of writing new vocabulary words together with their definitions

contributed positively to retention. Identifying familiar words or words with similar pronunciations facilitated memory recall. Creating mental images or drawings, constructing sentences that linked words with their meanings, and conducting self-testing through flashcards combined with group-learning activities were all perceived as effective techniques for improving vocabulary memorization. Overall, the factors influencing Chinese vocabulary learning were rated at a high level. Among these factors, the most influential were teachers, content and instructional materials, and learning management practices, all of which contributed significantly to students' vocabulary learning and retention.

Table 9: Shown Level of Opinion of Vocabulary Memorization Skills (VMS) Dimension

No	Vocabulary Memorization Skills (VMS)	N	$\bar{X}$	S.D	Level of Opinion
1	Giving students the freedom to write and quiz each other on vocabulary helps improve their vocabulary retention	217	4.08	0.77	High
2	Listening to classmates' presentations in class helps improve vocabulary retention	217	4.10	0.76	High
3	Learning through writing new words and their definitions helps improve vocabulary retention	217	4.04	0.77	High
4	Using a "Reminding Word" (a familiar word, often one with a similar sound) helps improve vocabulary retention	217	4.03	0.76	High
5	Writing sentences that connect the reminding word with the target word's definition helps improve vocabulary retention	217	3.95	0.83	High
6	Creating mental images or drawings to aid memory helps improve vocabulary retention	217	3.97	0.83	High
7	Self-testing with vocabulary flashcards (study cards), combined with group-based learning activities, helps improve vocabulary retention	217	3.94	0.80	High
	Total	**217**	**4.02**	**0.65**	**High**

Table 10: Shown The Level of Opinion of Overall Teaching and Learning Management Dimension

No	Overall Teaching and Learning Management	N	$\bar{X}$	S.D	Level of Opinion
1	Teacher (TCR)	217	4.07	0.76	High
2	Teaching and Learning Management (TLM)	217	4.00	0.70	High
3	Content and Instructional Materials	217	4.03	0.67	High
4	Assessment and Evaluation (AE)	217	4.00	0.71	High
5	Vocabulary Memorization Skills (VMS)	217	4.01	0.67	High
	Total	**217**	**4.01**	**0.65**	**High**

3.3 Relationship between vocabulary memorization Strategy and teaching-learning management in the Department of Chinese Language, Faculty of Letters, National University of Laos

1. Analysis the Relationship Between Chinese Vocabulary Memorization Strategy and the Teaching and Learning Management Dimension (TLM) Using Binary Logistic Regression

Table 11: The Relationship Between Student's Chinese Vocabulary Memorization Strategy (CVMM) and Teacher Dimension (TCR)

Variable	Description	B	S.E.	Wald	Sig.	Exp(B)	95% CI for Exp(B)
IDEN	Identifying a familiar "reminding word" to facilitate memorization	0.986	0.346	8.108	0.004	2.682	1.360–5.288
CREA	Creating mental images or drawings to aid memorization	-0.770	0.412	3.488	0.062	0.463	0.206–1.039
Note: Cox & Snell $R^2 = 0.060$; Nagelkerke $R^2 = 0.090$.							

The results of the Binary Logistic Regression analysis examining the relationship between the dependent variable, Teacher Dimension of Teaching and Learning Management (TCR), and five independent variables, namely: New Vocabulary and Definition Listing (LIST), Identifying a Familiar Reminding Word (IDEN), Linking Vocabulary to Definitions Through Sentences (NOTE), Creating Mental Images or Drawings (CREA), and Self-Testing Using Flashcards (STST), are presented above.

The Nagelkerke R^2 value of 0.090 suggests that the model accounts for approximately 9.0% of the

variation in TCR, while the remaining 91.0% is explained by factors not included in the model.

The results reveal that only IDEN is statistically significant ($p = 0.004 < 0.05$). In contrast, CREA is not statistically significant ($p = 0.062 > 0.05$).

Specifically, the use of the IDEN technique was positively associated with the teacher dimension of teaching and learning management (TCR) and reached statistical significance (B = 0.986, p = 0.004, OR = 2.682, 95% CI = 1.360–5.288). The odds of reporting a good or very good perception of the teacher dimension were 2.682 times higher among students who used the IDEN technique than among those who did not.

The CREA technique showed a negative relationship with TCR (B = -0.770); however, this relationship was not statistically significant (p = 0.062).

Non-significant variables (LIST, NOTE, and STST) were excluded from the final model.

Table 12: The Relationship Between Student's Chinese Vocabulary Memorization Strategy (CVMM) and The Learning Management Dimension (LM)

Variable	**Description**	**B**	**S.E.**	**Wald**	**Sig.**	**Exp(B)**	**95% CI for Exp(B)**
LIST	Writing new vocabulary and definitions	-0.686	0.355	3.728	0.054	0.504	0.251-1.010
IDEN	Identifying a familiar reminding word	0.729	0.370	3.883	0.049	2.073	1.004-4.281
STST	Self-testing using flashcards	-1.110	0.377	8.668	0.003	0.330	0.157-0.690
Note: Cox & Snell $R^2 = 0.070$; Nagelkerke $R^2 = 0.109$.							

The Nagelkerke R^2 value of 0.109 suggests that the logistic regression model accounts for approximately 10.9% of the variation in the Learning Management Dimension (LM), while the remaining 89.1% is attributable to factors not included in the model. The findings show that IDEN (p = 0.049) and STST (p = 0.003) were statistically significant predictors, whereas LIST (p = 0.054) was not significant at the 0.05 level.

The IDEN technique was positively associated with the Learning Management Dimension (B = 0.729, p = 0.049, OR = 2.073, 95% CI = 1.004–4.281). The odds of reporting good or very good perceptions of learning management were 2.073 times higher among students who used the IDEN technique than among those who did not.

Conversely, the STST technique was negatively associated with the Learning Management Dimension (B = -1.110, p = 0.003, OR = 0.330, 95% CI = 0.157–0.690). Students using the STST technique had 67.0% lower odds of reporting good or very good perceptions of learning management compared with students who did not use the technique.

The LIST technique demonstrated a negative but statistically insignificant relationship with LM (p = 0.054), although the result was close to the conventional significance threshold of 0.05.

Table 13: The Relationship Between Student's Chinese Vocabulary Memorization Strategy (CVMM) and Content and Learning Materials Dimension (CLM)

Variable	**Description**	**B**	**S.E.**	**Wald**	**Sig.**	**Exp(B)**	**95% CI for Exp(B)**
NOTE	Writing a sentence that connects the vocabulary word with its definition	0.893	0.534	2.798	0.094	2.443	0.858-6.957
CREA	Creating mental images or drawings to aid memorization	-0.881	0.462	3.639	0.056	0.414	0.167-1.024
STST	Self-testing using flashcards	-1.326	0.393	11.392	0.001	0.265	0.123-0.573
Note: Cox & Snell $R^2 = 0.074$; Nagelkerke $R^2 = 0.122$.							

The Nagelkerke R^2 value of 0.122 suggests that the logistic regression model accounts for approximately 12.2% of the variation in the Content and Learning Materials Dimension (CLM), while the remaining 87.8% is attributable to factors not included in the model.

The analysis revealed that only STST was a statistically significant predictor of the Content and Learning Materials Dimension (CLM) (p = 0.001). The variables NOTE (p = 0.094) and CREA (p = 0.056) were not statistically significant.

The STST technique was negatively associated with CLM (B = -1.326, p = 0.001, OR = 0.265, 95% CI = 0.123–0.573). Students who used the STST technique had 73.5% lower odds of reporting good or very good perceptions of the content and learning materials dimension than those who did not use the technique.

Although NOTE showed a positive relationship with CLM (B = 0.893), the relationship was not statistically significant (p = 0.094).

Similarly, CREA demonstrated a negative but marginally non-significant relationship with CLM (p = 0.056).

Table 14: The Relationship Between Student's Chinese Vocabulary Memorization Strategy (CVMM) and the Assessment and Evaluation Dimension (AE)

Variable	Description	B	S.E.	Wald	Sig.	Exp(B)	95% CI for Exp(B)
CREA	Creating mental images or drawings to aid memorization	-0.743	0.412	3.262	0.071	0.476	0.212-1.065
STST	Self-testing using flashcards	-0.830	0.357	5.396	0.020	0.436	0.216-0.878
Note: Cox & Snell R Square = 0.044, Nagelkerke R Square = 0.065							

The Nagelkerke R^2 value of 0.065 suggests that the logistic regression model accounts for approximately 6.5% of the variation in the Assessment and Evaluation Dimension (AE), while the remaining 93.5% is attributable to factors not included in the model.

The analysis indicates that only STST was statistically significant (p = 0.020). The variable CREA was not statistically significant (p = 0.071).

The STST technique was negatively associated with AES (B = -0.830, p = 0.020, OR = 0.436, 95% CI = 0.216–0.878). Students who used the STST technique had 56.4% lower odds of reporting good or very good perceptions of assessment and evaluation practices than those who did not use the technique.

CREA demonstrated a negative but marginally non-significant relationship with AES (p = 0.071).

Table 15: The Relationship Between Student's Chinese Vocabulary Memorization Strategy (CVMM) and the Vocabulary Memorization Skills (VMS)

Variable	Description	B	S.E.	Wald	Sig.	Exp(B)	95% CI for Exp(B)
IDEN	Identifying a familiar reminding word	1.071	0.402	7.082	0.008	2.917	1.326-6.418
STST	Self-testing using flashcards	-1.014	0.384	6.956	0.008	0.363	0.171-0.771
Note: Cox & Snell R Square = 0.078, Nagelkerke R Square = 0.125							

The Nagelkerke R^2 value of 0.125 suggests that the logistic regression model accounts for approximately 12.5% of the variation in Vocabulary Memorization Skills (VMS), while the remaining 87.5% is attributable to factors not included in the model. The findings show that both IDEN and STST were statistically significant predictors (p = 0.008).

The IDEN technique was positively associated with Vocabulary Memorization Skills (B = 1.071, p = 0.008, OR = 2.917, 95% CI = 1.326–6.418). The odds of reporting good or very good vocabulary memorization skills were 2.917 times higher among students who used the IDEN technique than among those who did not.

In contrast, the STST technique was negatively associated with Vocabulary Memorization Skills (B = -1.014, p = 0.008, OR = 0.363, 95% CI = 0.171–0.771). Students who used the STST technique had 63.7% lower odds of reporting good or very good vocabulary memorization skills than those who did not use the technique.

4. Discussion

Among the five components of the LINCS Vocabulary Strategy, the IDEN Strategy was the only technique that consistently demonstrated a positive association with teaching-learning management. The influence of LINCS-based vocabulary memorization Strategy differed across the dimensions of teaching-learning management examined in this study. Students who reported using the IDEN technique tended to evaluate TLM of the Department of Chinese Language more positively, particularly in the areas of teacher effectiveness, learning management, and vocabulary memorization skills.

1) Teacher Dimension (TCR)

The positive association between the IDEN Strategy and the TCR may be explained by the cognitive principles underlying mnemonic learning. Atkinson and Raugh (1975) emphasized the effectiveness of linking unfamiliar vocabulary to familiar words with similar sounds, thereby facilitating vocabulary retention. Previous studies have likewise demonstrated that phonological associations and mental imagery can strengthen learning and support long-term memory retention (Pressley et al., 1982; Ellis & Beaton, 1993; Irsyad, 2019) found that the keyword method is particularly effective for receptive vocabulary learning, while repetition practice is more effective for productive recall of foreign-language vocabulary. They also emphasized the important roles of imagery, phonological short-term memory, and lexical factors in vocabulary acquisition. Huang (2022) further indicated that cognitive and metacognitive learning Strategy contribute positively to Chinese vocabulary achievement among international learners. Students who actively employ association, inference, and memory-based Strategy generally achieve higher learning outcomes than those who rely on fewer strategic learning approaches. Similarly, Yan (2007) reported that learners who

frequently use association-based and memory-coding techniques tend to perform better in Chinese vocabulary acquisition. Connecting new vocabulary to familiar sounds, concepts, or prior experiences can support deeper processing of language input and facilitate retention. Cohen (1987) argued that mental imagery helps learners establish meaningful links between existing knowledge and newly acquired information, thereby improving memory retrieval. Furthermore, Leminen and Bai (2023) found that visual mnemonic techniques can enhance the learning of Chinese characters by increasing retention and reducing learning difficulty. According to Li & Xu (2020), the integrated Chinese language course serves as the most important core subject in teaching Chinese as a foreign language. It integrates pronunciation, vocabulary, and grammar instruction while developing learners' listening, speaking, reading, and writing skills. Compared with specialized courses such as conversation or writing, vocabulary instruction in integrated courses emphasizes comprehensiveness and systematicity. Teachers should therefore introduce the meanings, usages, and characteristics of Chinese vocabulary in a structured manner to establish a solid lexical foundation for learners. Such a foundation facilitates subsequent grammar learning and more advanced language study. Furthermore, the effectiveness of vocabulary instruction directly influences students' overall achievement and success in Chinese language learning. Collectively, these studies support the present finding that association-based Strategy, such as IDEN, can contribute positively to students' perceptions of effective teaching and learning.

2) Learning Management Dimension (LM)

The findings indicate that merely recording vocabulary words and their definitions may not be sufficient for effective vocabulary acquisition unless learners also engage in repeated review, contextual application, and active language use. Vocabulary learning becomes more effective when learners have opportunities to apply newly learned words in meaningful communicative contexts and reinforce them through systematic practice. This finding partially contrasts with the studies of Schmitt and Schmitt (1995), Dubiner (2017), and Huang (2022), which identified vocabulary notebooks as valuable tools for supporting vocabulary retention. However, those scholars also emphasized that note-taking is most effective when integrated with complementary learning Strategy rather than used in isolation.

The positive effect of the IDEN Strategy is consistent with the theoretical foundation of the Keyword Method. Atkinson and Raugh (1975) demonstrated that learners who associated target vocabulary with familiar-sounding words and mental images achieved substantially higher recall rates than learners who used traditional memorization techniques. In addition, phonological similarity has been shown to facilitate vocabulary recognition and retrieval by creating stronger memory connections. Therefore, the effectiveness of the IDEN Strategy may stem from its ability to encourage meaningful cognitive associations that support both vocabulary learning and learners' perceptions of classroom learning management.

3) Vocabulary Memorization Skills Dimension (VMS)

The positive relationship between the IDEN Strategy and Vocabulary Memorization Skills aligns with the principles of mnemonic learning theory. According to Atkinson and Raugh (1975), linking unfamiliar vocabulary items with familiar sounds or concepts helps learners establish stronger memory pathways, resulting in greater retention than conventional memorization approaches. By connecting new information with existing knowledge structures, learners can retrieve vocabulary more efficiently and retain it for longer periods.

This interpretation is supported by the work of Irsyad (2019), who found that the Keyword Method significantly improves both vocabulary acquisition and long-term retention. Likewise, Huang (2022) reported that cognitive vocabulary-learning Strategy positively influence Chinese language learning outcomes among international students. The use of associations, familiar experiences, and memory-support Strategy appears to be particularly beneficial for vocabulary development. Although flashcards and self-testing techniques have been recognized as useful learning tools, Dubiner (2017) noted that their effectiveness depends on systematic review and meaningful engagement with vocabulary items. Overall, the present findings suggest that association-based learning techniques represented by the IDEN Strategy provide substantial benefits for vocabulary memorization and may contribute to stronger language-learning outcomes among Chinese language students.

5. Conclusion

The study adopted the LINCS Vocabulary Strategy developed by Ellis (1998), which consists of five components: List, Identify, Note, Create, and Self-Test. Among these components, only the Identifying a Familiar Reminder Word (IDEN) technique demonstrated a statistically significant positive relationship with teaching and learning management. A statistically significant positive relationship; STST demonstrated statistically significant negative relationships with four dimensions of teaching and learning management with teaching and learning management. Specifically, students who applied the IDEN technique by associating new Chinese vocabulary with familiar words, similar sounds, or prior knowledge were more likely to perceive the quality of teaching and

learning management positively, particularly in the dimensions of Teacher (TCR), Learning Management (LM), and Vocabulary Memorization Skills (VMS).

The results suggest that students in the Department of Chinese Language, Faculty of Letters, National University of Laos tend to learn Chinese vocabulary more effectively when they use association Strategy rather than relying solely on rote memorization. The IDEN technique enables learners to connect new vocabulary with existing knowledge structures, facilitating comprehension, retrieval, and long-term retention. This finding is consistent with the Keyword Method Theory and previous studies emphasizing the importance of cognitive connection and memory Strategy in foreign language vocabulary acquisition.

In contrast, one possible explanation for the negative association of the Self-Test (STST) Strategy is that learners may depend heavily on vocabulary recall through flashcards without sufficiently engaging with the broader instructional content. In adult learning environments, flashcard-based self-testing alone may not adequately support deep learning processes, as it tends to emphasize memorization rather than conceptual understanding and meaningful language use. As a result, learners may acquire isolated vocabulary items while lacking opportunities to develop contextual understanding and communicative competence. This limitation may explain why students who predominantly employ the STST Strategy reported fewer positive perceptions of teaching-learning management, instructional materials, assessment practices, and vocabulary memorization skills. The findings suggest that self-testing techniques should be combined with contextualized instruction, collaborative learning activities, and meaningful language practice to maximize learning effectiveness.

Overall, the study concludes that students employ a variety of vocabulary learning Strategy; however, the Identifying a Familiar Reminder Word (IDEN) was only the Identify (IDEN) and Self-Test (STST) Strategy demonstrated statistically significant relationships with teaching and learning management outcomes. The IDEN method, which involves associating new vocabulary with familiar words or concepts, showed significant positive relationships with the TCR, TLM, and VSM dimensions. In contrast, STST. Therefore, Chinese language teachers should encourage students to use association-based vocabulary learning techniques, integrate meaningful connections between new and existing knowledge, and incorporate memory-supporting activities into classroom instruction to improve vocabulary retention and learning outcomes.

6. Conflict of interest

We certify that there is no conflict of interest with any financial organization regarding the materials discussed in the manuscript.

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