

Direct Language Learning Strategy Use among Malay Undergraduates Learning Mandarin at a Malaysian Public University

Woon Chuan Ong¹, Chun Keat Yeap^{2*}, Min Hui Leow³, Yang Lian Tay⁴

¹Academy of Language Studies, Universiti Teknologi MARA (UiTM) Cawangan Negeri Sembilan, Kampus Kuala Pilah, 72000 Kuala Pilah, Negeri Sembilan, MALAYSIA

²Academy of Language Studies, Universiti Teknologi MARA (UiTM) Cawangan Melaka, Kampus Alor Gajah, 78000 Alor Gajah, Melaka, MALAYSIA

³Academy of Language Studies, Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang, Kampus Permatang Pauh, 13500 Permatang Pauh, Pulau Pinang, MALAYSIA

⁴Academy of Language Studies, Universiti Teknologi MARA (UiTM) Cawangan Perak, Kampus Seri Iskandar, Seri Iskandar 32610, Perak, MALAYSIA

*Corresponding Author

DOI: <https://doi.org/10.47772/IJRISS.2026.100800301>

Received: 20 August 2026; Accepted: 25 August 2026; Published: 02 September 2026

ABSTRACT

This study examines how Malay undergraduates at a Malaysian public university use direct language learning strategies when learning Mandarin as a foreign language. Drawing on Oxford's (1990) classification, the study focuses on three direct strategy categories: memory, cognitive, and compensation strategies. Survey data were collected from 445 students, comprising 101 males and 344 females, who were enrolled in Introductory Mandarin Levels I, II, and III. Descriptive statistics, repeated-measures analysis of variance (ANOVA), and Bonferroni-adjusted pairwise comparisons were used to identify overall and group-specific patterns in strategy use. The findings showed that all three strategy categories were used at a moderate level. Memory strategies recorded the highest mean score ($M = 3.1061$, $SD = 0.57390$), followed by cognitive strategies ($M = 2.8931$, $SD = 0.59880$) and compensation strategies ($M = 2.8397$, $SD = 0.65714$). Repeated-measures analysis further indicated that memory strategies were used significantly more often than cognitive and compensation strategies. At the item level, linking new Mandarin knowledge with prior knowledge and practising Mandarin pronunciation were among the most frequently reported behaviours. In contrast, initiating conversations, writing in Mandarin, reading for pleasure, and reading without checking unfamiliar words were reported less frequently. Male and female learners showed broadly similar memory-oriented profiles, although some differences appeared in the relative use of cognitive and compensation strategies within each group. Overall, the findings suggest that learners rely strongly on retention, rehearsal, and form-focused practice, while making less frequent use of autonomous, communicative, and risk-taking strategies. The study therefore highlights the value of explicit strategy instruction that builds on learners' existing strengths while encouraging a broader, more flexible repertoire of speaking, reading, writing, and compensatory strategies in Mandarin learning.

Keywords: direct language learning strategies; Mandarin as a foreign language; Malay undergraduates; cognitive strategies; compensation strategies

INTRODUCTION

Mandarin has become increasingly relevant to Malay undergraduates in Malaysia as multilingual ability carries growing value in higher education and the workplace. In Malaysia's multilingual environment, greater contact

with Chinese-speaking communities also gives Mandarin practical value beyond the classroom. As a result, many public universities offer Mandarin as a foreign language to non-native learners.

For Malay-speaking learners, Mandarin brings a set of unfamiliar demands. Tone, the writing system, and the links between form and meaning differ markedly from Malay and English. Learners therefore need ways to remember new forms, practise and analyse the language, and keep communicating when their knowledge is incomplete. Language learning strategies (LLS) are useful in this respect because they describe the deliberate ways learners manage language learning and use.

LLS have been studied widely in second- and foreign-language settings, but research on Mandarin learning in Malaysia is still uneven. Existing work has looked at broad strategy categories, online learning, pronunciation, self-regulation, and achievement. These studies are informative, yet category-level averages can hide substantial variation in the specific behaviours learners actually use. Looking more closely at direct strategies can therefore show which forms of retention, practice, analysis, and compensation are already common among Malay undergraduates and which remain less developed.

Against this background, the present study examines memory, cognitive, and compensation strategies among Malay undergraduates learning Mandarin at a Malaysian public university. It compares the three direct strategy categories within the same participants, looks at item-level patterns, and reports the corresponding profiles for male and female learners. The emphasis is on how often strategies are reported, not on whether a frequently used strategy is necessarily more effective.

LITERATURE REVIEW

2.1 Language Learning Strategies: Concept and Contemporary Perspective

Language learning strategies (LLS) are the deliberate mental and behavioural actions learners use to make language learning more manageable. They can support the acquisition, storage, retrieval, understanding, and use of a target language. Early accounts described these strategies as actions, thoughts, plans, or routines that learners draw on to improve learning (Wenden, 1987; O'Malley & Chamot, 1990; Oxford, 1990; Cohen, 1998). Later work has placed greater emphasis on the interaction between strategies and factors such as the learner, the task, motivation, and context. Even so, Oxford's taxonomy remains a widely used framework for describing strategy repertoires. More recent research also treats strategy use as flexible and context-dependent rather than as a fixed characteristic of a "good language learner" (Griffiths, 2015; Teng, 2023).

Recent research has also linked strategy use more closely with self-regulation and learning outcomes. In a Malaysian public-university Mandarin context, Neo et al. (2024) found strong relationships among metacognitive self-regulation, cognitive strategies, and resource-management strategies. Their findings show that strategy use is part of a wider process of learner regulation rather than an isolated set of techniques. Leong et al. (2024), working with 379 Malaysian undergraduates learning Chinese as a foreign language, also reported a relationship between language learning strategies and Chinese-language achievement. Together, these studies underline the value of identifying the strategies learners actually use and the areas in which their repertoires are less developed.

2.2 Oxford's Direct Language Learning Strategies

Oxford (1990) grouped LLS into direct and indirect strategies. Direct strategies involve the target language itself and include memory, cognitive, and compensation strategies. Memory strategies help learners store and retrieve information through association, imagery, review, and action. Cognitive strategies involve activities such as practising, analysing, reasoning, transforming, receiving, and producing language. Compensation strategies allow learners to work around gaps in their knowledge through guessing, circumlocution, substitution, gesture, and similar techniques. Indirect strategies—metacognitive, affective, and social—support planning, monitoring, emotional regulation, and interaction, but they fall outside the scope of this study.

These three direct categories are particularly relevant to Mandarin as a foreign language (MFL). Learners have to connect pronunciation, tone, meaning, and written form while also making sense of unfamiliar lexical and syntactic patterns. This can lead them to rely on memory, repeated practice, analysis, and compensatory guessing in different combinations. Malaysian research has therefore moved beyond broad SILL categories to examine more specific skills and behaviours. Ting and Ooi (2023), for example, explored pronunciation strategies among Malaysian non-native learners, while Pang et al. (2024) showed through qualitative data that college learners use a range of strategies to manage the writing, pronunciation, and cultural demands of Chinese.

2.3 Recent Research on Chinese and Mandarin Learning Strategies (2022–2026)

Recent studies make it clear that Chinese-learning strategy profiles differ across learner groups and settings. In Malaysia, Eng et al. (2022) studied 445 Malay undergraduates learning Mandarin and found that memory was the most frequently reported direct strategy, followed by cognitive and compensation strategies. Teoh et al. (2022) likewise found a varied strategy repertoire among non-native Chinese-language learners in Malaysia. Taken together, these studies show that the relative prominence of strategy categories cannot simply be inferred from general second-language research.

More recent Malaysian studies add further detail. Neo et al. (2024) found rehearsal to be one of the more strongly endorsed cognitive components in introductory Mandarin learning and showed that cognitive strategy use was closely related to metacognitive and resource-management processes. Leong et al. (2024) reported a relationship between LLS and Chinese-language achievement, suggesting that learners' strategic choices have consequences for learning rather than representing preferences alone. Ting and Ooi (2025) examined pronunciation strategies and gender; although female learners reported somewhat greater overall strategy use, a significant gender difference appeared only for cognitive pronunciation strategies. This body of work supports closer examination of specific categories and behaviours rather than treating LLS as a single undifferentiated construct.

Research outside Malaysia points in the same direction. Chen and Zhang (2024), for instance, found that Central Asian learners used compensation strategies most often, followed by cognitive and memory strategies. This differs from the memory-dominant pattern reported by Eng et al. (2022) among Malaysian Malay undergraduates. Such contrasts suggest that linguistic background, proficiency, learning duration, institutional setting, and opportunities for interaction can all shape strategy use. Chen and Zhang (2024) also found no overall gender difference, although some subcategories, including memory strategies, did vary by gender. Gender, therefore, is better treated as a context-sensitive factor than as a uniform predictor of strategy behaviour.

The research base has also become more varied in both population and method. Luu's (2025) review noted that Chinese-learning strategy studies now include learners from different nationalities, proficiency levels, and educational stages, although quantitative designs remain especially common. Lee (2025), for example, examined Korean learners in relation to gender, HSK level, knowledge of Chinese characters, study duration, weekly study time, interest, and achievement. Pang et al. (2024), by contrast, used qualitative interviews to explore learners' strategic experiences in greater depth. This diversity reinforces the need to interpret strategy use in relation to the characteristics and circumstances of a particular learner group.

The newest work continues this more contextual view of strategy use. Cheng et al. (2026), studying L2 Chinese learners at European universities, considered learning motivation alongside strategy use and showed that learners' strategies are linked to both motivational and institutional conditions. In other words, strategic behaviour reflects more than the linguistic difficulty of Chinese: it is also shaped by why learners study the language, where they learn it, and how often they have opportunities to use it. Detailed studies of specific learner populations therefore remain useful when they are grounded in their instructional and sociolinguistic contexts.

2.4 Gender and Direct Strategy Use

Findings on gender remain mixed. Earlier research often suggested that female learners used a wider range of strategies, whereas more recent Chinese-language studies point to narrower, category-specific differences. Chen and Zhang (2024) found no overall gender difference in Chinese-learning strategies, although memory and affective strategies differed. In Malaysia, Ting and Ooi (2025) reported broadly similar pronunciation-strategy

patterns for males and females, with a significant difference only in cognitive strategies. Eng et al. (2022) similarly found a gender difference in compensation strategies but not in memory or cognitive strategies. These inconsistent patterns suggest that gender effects depend on the learner group, task, strategy domain, and analytical method. Descriptive differences between male and female learners should therefore not be treated as statistically significant unless they are tested directly.

2.5 Research Gap and Rationale for the Present Study

Despite the growth of research on Chinese learning strategies, an important issue remains in the Malaysian MFL context: category-level averages do not always show what learners are actually doing. Recent work has examined broad strategy categories, pronunciation, self-regulation, achievement, and learner characteristics, but strategy rankings also vary across populations and instructional settings (Chen & Zhang, 2024; Lee, 2025; Cheng et al., 2026). An item-level analysis can therefore reveal which forms of retention, practice, analysis, and compensation are already part of learners' routines and which are used less often.

The present study addresses this issue by focusing on memory, cognitive, and compensation strategies among Malay undergraduates learning Mandarin at a Malaysian public university. It considers both the overall pattern across the three categories and the individual behaviours that sit within them, while also reporting separate profiles for male and female learners. This makes it possible to identify established learning habits as well as areas—particularly autonomous and communicative strategy use—that may need greater pedagogical support.

RESEARCH OBJECTIVE

The study therefore focuses on how Malay undergraduates use direct language learning strategies when learning Mandarin as a foreign language.

Its main aims are to describe the frequency and item-level patterns of memory, cognitive, and compensation strategies and to test whether the three categories differ within the overall sample and within the male and female groups.

The study seeks to address the following research questions:

RQ1. What is the frequency pattern of memory, cognitive, and compensation strategy use among Malay undergraduates learning Mandarin?

RQ2. Is there a significant within-participant difference in the use of memory, cognitive, and compensation strategies among the overall sample?

RQ3. What item-level patterns characterise memory, cognitive, and compensation strategy use among the overall sample?

RQ4. What are the frequency and item-level patterns of memory, cognitive, and compensation strategy use among male Malay undergraduates, and are there significant within-participant differences among the three strategy categories?

RQ5. What are the frequency and item-level patterns of memory, cognitive, and compensation strategy use among female Malay undergraduates, and are there significant within-participant differences among the three strategy categories?

RESEARCH METHODOLOGY

4.1 Research Design

A quantitative cross-sectional survey design was used to examine direct language learning strategy use among Malay undergraduates learning Mandarin as a foreign language at a Malaysian public university. Oxford's (1990) three direct strategy categories—memory, cognitive, and compensation—provided the analytical framework.

This design allowed the study to describe how often the strategies were used, compare the three categories within the same participants, and examine item-level patterns for the full sample as well as for male and female learners separately.

4.2 Participants

The study involved 445 Malay undergraduates (101 males and 344 females), aged 21–26, who were non-native speakers of Mandarin and were enrolled in Introductory Mandarin Levels I, II, or III. They came from a range of academic programmes, including Business Administration, Art and Design, Accountancy, Hotel and Tourism Management, Communication and Media, Computer Science and Mathematics, and Plantation and Agrotechnology. The gender distribution was unequal, with a larger proportion of female participants. Socioeconomic background, prior exposure to Mandarin, proficiency differences, learning motivation, and opportunities for Mandarin use were not analysed as explanatory variables; the findings are therefore interpreted as self-reported strategy-use patterns within this particular university sample rather than as evidence of the determinants of strategy choice.

4.3 Research Instrument

Participants indicated how frequently they used each strategy on a five-point scale. For descriptive interpretation, the five-point response range was divided into five equal-width intervals: 1.00–1.80 (very low), 1.81–2.60 (low), 2.61–3.40 (moderate), 3.41–4.20 (high), and 4.21–5.00 (very high). These intervals were used only to describe the relative frequency of reported strategy use and should not be interpreted as Oxford’s original SILL frequency bands or as evidence of strategy effectiveness.

The instrument was based on the direct-strategy component of Oxford’s (1990) Strategy Inventory for Language Learning (SILL) and was contextualised for Mandarin learning. It comprised 29 items: nine memory-strategy items, fourteen cognitive-strategy items, and six compensation-strategy items. The adapted wording included behaviours such as relating new Mandarin knowledge to prior knowledge, practising Mandarin pronunciation, analysing unfamiliar Chinese words, guessing meaning from context, and using gestures when lexical knowledge was insufficient.

4.4 Data Collection Procedure

The questionnaire was administered to students enrolled in Introductory Mandarin Levels I, II, and III. Participation was voluntary, and responses were used solely for research purposes. Completed questionnaires were screened before statistical analysis. No personally identifying information is reported in this manuscript.

4.5 Reliability of the Instrument

Internal consistency was assessed using Cronbach’s alpha for each direct-strategy subscale. The results are presented in Table 1.

Table 1 Cronbach’s Alpha Reliability Coefficients for Direct Language Learning Strategies

Strategy	Number of Items	Cronbach’s Alpha
Memory Strategies	9	.818
Cognitive Strategies	14	.866
Compensation Strategies	6	.762

Across the three subscales, Cronbach’s alpha coefficients ranged from .762 to .866, indicating satisfactory internal consistency for the analyses reported in this study.

4.6 Data Analysis

Data were analysed using descriptive and inferential statistics. Means and standard deviations were calculated for the three direct strategy categories and for individual strategy items. To test whether the mean use of memory, cognitive, and compensation strategies differed within the same participants, a one-way repeated-measures ANOVA was conducted for the overall sample and separately for the male and female groups. Bonferroni-adjusted pairwise comparisons were used following significant omnibus tests. Statistical significance was evaluated at $p < .05$.

For the overall and male analyses, the reported ANOVA output contained corrected fractional degrees of freedom; these values are retained as reported. Partial eta squared (η^2) is reported as an effect-size estimate calculated from the reported sums of squares. The gender-specific analyses compare strategy categories within males and within females; they do not constitute a direct inferential comparison between male and female learners.

RESULTS

The findings are presented in relation to the five research questions. Descriptive patterns are reported first, followed by the repeated-measures ANOVA and Bonferroni-adjusted pairwise comparisons. The item-level tables are retained to show how individual strategy behaviours contribute to the broader category-level patterns.

5.1 RQ1. What is the frequency pattern of memory, cognitive, and compensation strategy use among Malay undergraduates learning Mandarin?

Table 2 Means and Standard Deviations of Direct Strategy Use among the Overall Sample

Group	Direct Learning Strategies					
	Memory		Cognitive		Compensation	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Overall	3.1061	0.57390	2.8931	0.59880	2.8397	0.65714

Table 3 Interpretation of Mean Scores on the Use of Direct Learning Strategies

Scale	Scale Description	Mean Range	Frequency Level
5	Always do this	4.21 – 5.00	Very high
4	Generally do this	3.41 – 4.20	High
3	Somewhat do this	2.61 – 3.40	Moderate
2	Generally do not do this	1.81 – 2.60	Low
1	Never or almost never do this	1.00 – 1.80	Very low

As shown in Tables 2 and 3, all three direct strategy categories were used at a moderate level. Memory strategies had the highest mean ($M = 3.1061$, $SD = 0.57390$), followed by cognitive strategies ($M = 2.8931$, $SD = 0.59880$) and compensation strategies ($M = 2.8397$, $SD = 0.65714$).

A one-way repeated-measures ANOVA was used to determine whether these within-participant differences among the three strategy categories were statistically significant.

5.2 RQ2. Is there a significant within-participant difference in the use of memory, cognitive, and compensation strategies among the overall sample?

Table 4 One-Way Repeated-Measures ANOVA of Direct Learning Strategies by Type

Source	SS	df	MS	F	p
Type	17.682	1.850	9.558	64.453	< .001
Error	121.809	821.372	0.148		

Table 5 Bonferroni-Adjusted Pairwise Comparisons of Direct Learning Strategies

Direct Learning Strategies	N	Mean	Std. Deviation	Bonferroni-Adjusted Pairwise Comparisons		
				Memory	Cognitive	Compensation
Memory	445	3.1061	0.57390		< .001*	< .001*
Cognitive	445	2.8931	0.59880	< .001*		.086
Compensation	445	2.8397	0.65714	< .001*	.086	
*The mean difference is significant at the .05 level.						

The repeated-measures ANOVA showed a significant effect of strategy type, $F(1.850, 821.372) = 64.453$, $p < .001$, $\eta^2 = .127$. Thus, the three direct strategy categories were not used to the same extent within the overall sample.

Bonferroni-adjusted pairwise comparisons showed that memory strategies were used significantly more frequently than cognitive strategies ($p < .001$) and compensation strategies ($p < .001$). The difference between cognitive and compensation strategies was not statistically significant ($p = .086$).

Overall, the sample displayed a memory-oriented direct-strategy profile, while cognitive and compensation strategies were used at statistically similar levels.

5.3 RQ3. What item-level patterns characterise memory, cognitive, and compensation strategy use among the overall sample?

Table 6 Item-Level Descriptive Statistics for Memory Strategies: Overall Sample

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I think of relationships between what I already know and new things I learn in Mandarin.	3.41	0.744
2	I do Mandarin lessons revision often.	3.23	0.762
3	I connect the sound of a new Chinese word and image or picture of the word to help me remember it.	3.21	0.98

4	I use new Chinese words in a sentence so I can remember them.	3.15	0.871
5	I remember a new Chinese word by making a mental picture of a situation in which the word might be used.	3.14	0.913
6	I physically act out new Chinese words.	3	0.894
7	I remember new Chinese words or phrases by remembering their location on the page, on the board, or on a street sign.	3	0.926
8	I use rhymes to remember new Chinese words.	2.97	0.931
9	I use flashcards to remember new Chinese words.	2.84	1.034

Table 7 Item-Level Descriptive Statistics for Cognitive Strategies: Overall Sample

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I practise the pronunciation of Mandarin.	3.63	0.817
2	I find the meaning of a Chinese word by dividing it into parts that I understand.	3.22	1.021
3	I watch Chinese language entertainment shows spoken in Mandarin.	3.07	1.202
4	I try to talk like native Chinese speakers.	3.06	0.991
5	I say or write new Chinese words several times.	3.01	0.899
6	I use the Chinese words I know in different ways.	2.99	0.9
7	I try to find patterns in Mandarin.	2.97	0.944
8	I make summaries of information that I hear or read in Mandarin.	2.92	0.952
9	I look for words in my own language that are similar to new words in Chinese.	2.9	1.017
10	I try not to translate word-for-word.	2.78	1.035
11	I first skim a Chinese passage then go back and read carefully	2.74	1.03
12	I read for pleasure in Mandarin.	2.6	1.004
13	I start off conversations in Mandarin with people.	2.43	1.019
14	I write notes, messages, letters, or reports in Mandarin.	2.18	0.993

Table 8 Item-Level Descriptive Statistics for Compensation Strategies: Overall Sample

Rank order of use by frequency	Items	Mean	Std. Deviation
1	To understand unfamiliar Chinese words, I make guesses.	3.28	0.955
2	When I cannot think of a word during a conversation in Mandarin, I use gestures.	3.23	0.967
3	If I cannot think of a Chinese word, I use a word or phrase that means the same thing.	2.92	0.959
4	I try to guess what the other person will say next in Mandarin.	2.79	0.98
5	I make up new words if I do not know the right ones in Mandarin.	2.56	1.035
6	I read Mandarin without looking up every new word.	2.26	0.933

Tables 6–8 provide the full item-level results for the overall sample. The text therefore focuses on the strategies that were reported most and least often rather than repeating every value in the tables.

For memory strategies, relating new Mandarin knowledge to prior knowledge ranked highest ($M = 3.41$, $SD = 0.744$), followed by lesson revision ($M = 3.23$, $SD = 0.762$) and sound–image association ($M = 3.21$, $SD = 0.980$). Flashcard use was the least frequently reported memory strategy ($M = 2.84$, $SD = 1.034$).

For cognitive strategies, pronunciation practice ranked highest ($M = 3.63$, $SD = 0.817$). By contrast, writing notes, messages, letters, or reports in Mandarin ($M = 2.18$, $SD = 0.993$), initiating conversations ($M = 2.43$, $SD = 1.019$), and reading for pleasure ($M = 2.60$, $SD = 1.004$) were the least frequently reported behaviours.

For compensation strategies, guessing the meaning of unfamiliar Chinese words ($M = 3.28$, $SD = 0.955$) and using gestures when a word could not be recalled ($M = 3.23$, $SD = 0.967$) ranked highest. Reading Mandarin without looking up every unfamiliar word ranked lowest ($M = 2.26$, $SD = 0.933$).

5.4 RQ4. What are the frequency and item-level patterns of memory, cognitive, and compensation strategy use among male Malay undergraduates, and are there significant within-participant differences among the three strategy categories?

Table 9 Means and Standard Deviations of Direct Strategy Use among Male Learners

Group	Memory		Cognitive		Compensation	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Male	3.1837	0.60091	2.9498	0.65912	2.9934	0.66580

As shown in Table 9, male learners reported moderate use of all three direct strategy categories. Memory strategies were highest ($M = 3.1837$, $SD = 0.60091$), followed by compensation ($M = 2.9934$, $SD = 0.66580$) and cognitive strategies ($M = 2.9498$, $SD = 0.65912$).

A one-way repeated-measures ANOVA was conducted to determine whether the three strategy means differed significantly among male learners.

5.4.1 Male learners: Within-participant differences among strategy categories

Table 10 One-Way Repeated-Measures ANOVA of Direct Learning Strategies among Male Malay Undergraduates

Source	SS	df	MS	F	p
Type	3.126	1.957	1.597	12.086	< .001
Error	25.863	195.736	0.132		

Table 11 Bonferroni-Adjusted Pairwise Comparisons among Male Malay Undergraduates

Gender	Direct Learning Strategies	N	Mean	Std. Deviation	Bonferroni-Adjusted Pairwise Comparisons		
					Memory	Cognitive	Compensation
Male	Memory	101	3.1837	0.60091		< .001*	.002*
	Cognitive	101	2.9498	0.65912	< .001*		> .999
	Compensation	101	2.9934	0.66580	.002*	> .999	
*The mean difference is significant at the .05 level.							

For male learners, the repeated-measures ANOVA showed a significant effect of strategy type, $F(1.957, 195.736) = 12.086$, $p < .001$, $\eta^2 = .108$.

Bonferroni-adjusted pairwise comparisons showed that memory strategies were used significantly more frequently than cognitive strategies ($p < .001$) and compensation strategies ($p = .002$), while cognitive and compensation strategies did not differ significantly ($p > .999$).

The male subgroup therefore showed a memory-oriented profile, with no statistically significant difference between cognitive and compensation strategy use.

5.4.2 Male learners: Item-level strategy patterns

Table 12 Item-Level Descriptive Statistics for Memory Strategies among Male Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I think of relationships between what I already know and new things I learn in Mandarin.	3.38	0.746
2	I connect the sound of a new Chinese word and image or picture of the word to help me remember it.	3.31	0.935
3	I use new Chinese words in a sentence so I can remember them.	3.24	0.885
4	I remember a new Chinese word by making a mental picture of a situation in which the word might be used.	3.24	0.873
5	I do Mandarin lessons revision often.	3.24	0.802

6	I use rhymes to remember new Chinese words.	3.13	0.902
7	I physically act out new Chinese words.	3.09	0.838
8	I remember new Chinese words or phrases by remembering their location on the page, on the board, or on a street sign.	3.03	0.911
9	I use flashcards to remember new Chinese words.	3.01	1.063

Table 13 Item-Level Descriptive Statistics for Cognitive Strategies among Male Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I practise the pronunciation of Mandarin.	3.50	0.844
2	I find the meaning of a Chinese word by dividing it into parts that I understand.	3.22	0.986
3	I use the Chinese words I know in different ways.	3.19	0.88
4	I say or write new Chinese words several times.	3.18	0.888
5	I try to find patterns in Mandarin.	3.18	0.953
6	I try to talk like native Chinese speakers.	3.15	1.004
7	I look for words in my own language that are similar to new words in Chinese.	2.95	0.963
8	I make summaries of information that I hear or read in Mandarin.	2.91	0.939
9	I watch Chinese language entertainment shows spoken in Mandarin.	2.83	1.123
10	I try not to translate word-for-word.	2.79	1.143
11	I first skim a Chinese passage then go back and read carefully	2.73	1.019
12	I read for pleasure in Mandarin.	2.64	1.054
13	I start off conversations in Mandarin with people.	2.60	1.021
14	I write notes, messages, letters, or reports in Mandarin.	2.43	0.963

Table 14 Item-Level Descriptive Statistics for Compensation Strategies among Male Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	To understand unfamiliar Chinese words, I make guesses.	3.43	0.952

2	When I cannot think of a word during a conversation in Mandarin, I use gestures.	3.25	0.974
3	If I cannot think of a Chinese word, I use a word or phrase that means the same thing.	3.06	0.978
4	I make up new words if I do not know the right ones in Mandarin.	2.96	1.058
5	I try to guess what the other person will say next in Mandarin.	2.84	1.007
6	I read Mandarin without looking up every new word.	2.43	1.013

Tables 12–14 show the complete item-level profile for male learners. The summary below draws attention to the most and least frequently reported behaviours.

Among male learners, the highest-ranked memory strategy was relating new Mandarin knowledge to prior knowledge ($M = 3.38$, $SD = 0.746$), followed by sound–image association ($M = 3.31$, $SD = 0.935$). Flashcard use ranked lowest within the memory category ($M = 3.01$, $SD = 1.063$).

For cognitive strategies among males, pronunciation practice ranked highest ($M = 3.50$, $SD = 0.844$). The least frequently reported behaviours were writing in Mandarin ($M = 2.43$, $SD = 0.963$) and initiating conversations ($M = 2.60$, $SD = 1.021$).

For compensation strategies among males, guessing unfamiliar Chinese words ranked highest ($M = 3.43$, $SD = 0.952$), followed by using gestures ($M = 3.25$, $SD = 0.974$). Reading Mandarin without looking up every unfamiliar word ranked lowest ($M = 2.43$, $SD = 1.013$).

5.5 RQ5. What are the frequency and item-level patterns of memory, cognitive, and compensation strategy use among female Malay undergraduates, and are there significant within-participant differences among the three strategy categories?

Table 15 Means and Standard Deviations of Direct Strategy Use among Female Learners

Group	Memory		Cognitive		Compensation	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Female	3.0833	0.56460	2.8765	0.57988	2.7946	0.64865

As shown in Table 15, female learners also reported moderate use of all three direct strategy categories. Memory strategies were highest ($M = 3.0833$, $SD = 0.56460$), followed by cognitive ($M = 2.8765$, $SD = 0.57988$) and compensation strategies ($M = 2.7946$, $SD = 0.64865$).

A one-way repeated-measures ANOVA was conducted to determine whether the three strategy means differed significantly among female learners.

5.5.1 Female learners: Within-participant differences among strategy categories

Table 16 One-Way Repeated-Measures ANOVA of Direct Learning Strategies among Female Malay Undergraduates

Source	SS	df	MS	F	p
Type	15.238	2	7.619	54.862	< .001
Error	95.265	686	0.139		

Table 17 Bonferroni-Adjusted Pairwise Comparisons among Female Malay Undergraduates

Gender	Direct Learning Strategies	N	Mean	Std. Deviation	Bonferroni-Adjusted Pairwise Comparisons		
					Memory	Cognitive	Compensation
Female	Memory	344	3.0833	0.56460		< .001*	< .001*
	Cognitive	344	2.8765	0.57988	< .001*		.010*
	Compensation	344	2.7946	0.64865	< .001*	.010*	
*The mean difference is significant at the .05 level.							

For female learners, the repeated-measures ANOVA showed a significant effect of strategy type, $F(2, 686) = 54.862$, $p < .001$, $\eta^2 = .138$.

Bonferroni-adjusted pairwise comparisons showed significant differences between memory and cognitive strategies ($p < .001$), memory and compensation strategies ($p < .001$), and cognitive and compensation strategies ($p = .010$), using the study-wide significance criterion of $p < .05$.

The female subgroup therefore showed the same broad memory-oriented profile, although cognitive strategies were also reported significantly more frequently than compensation strategies.

5.5.2 Female learners: Item-level strategy patterns

Table 18 Item-Level Descriptive Statistics for Memory Strategies among Female Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I think of relationships between what I already know and new things I learn in Mandarin.	3.42	0.744
2	I do Mandarin lessons revision often.	3.22	0.752
3	I connect the sound of a new Chinese word and image or picture of the word to help me remember it.	3.18	0.992
4	I use new Chinese words in a sentence so I can remember them.	3.13	0.867
5	I remember a new Chinese word by making a mental picture of a situation in which the word might be used.	3.11	0.924
6	I remember new Chinese words or phrases by remembering their location on the page, on the board, or on a street sign.	2.99	0.932
7	I physically act out new Chinese words.	2.97	0.909
8	I use rhymes to remember new Chinese words.	2.92	0.935
9	I use flashcards to remember new Chinese words.	2.80	1.021

Table 19 Item-Level Descriptive Statistics for Cognitive Strategies among Female Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	I practise the pronunciation of Mandarin.	3.67	0.806
2	I find the meaning of a Chinese word by dividing it into parts that I understand.	3.22	1.033
3	I watch Chinese language entertainment shows spoken in Mandarin.	3.14	1.217
4	I try to talk like native Chinese speakers.	3.03	0.988
5	I say or write new Chinese words several times.	2.96	0.898
6	I use the Chinese words I know in different ways.	2.93	0.899
7	I make summaries of information that I hear or read in Mandarin.	2.92	0.957
8	I try to find patterns in Mandarin.	2.91	0.934
9	I look for words in my own language that are similar to new words in Chinese.	2.88	1.033
10	I try not to translate word-for-word.	2.78	1.002
11	I first skim a Chinese passage then go back and read carefully	2.74	1.035
12	I read for pleasure in Mandarin.	2.58	0.989
13	I start off conversations in Mandarin with people.	2.38	1.015
14	I write notes, messages, letters, or reports in Mandarin.	2.11	0.991

Table 20 Item-Level Descriptive Statistics for Compensation Strategies among Female Learners

Rank order of use by frequency	Items	Mean	Std. Deviation
1	To understand unfamiliar Chinese words, I make guesses.	3.23	0.953
2	When I cannot think of a word during a conversation in Mandarin, I use gestures.	3.23	0.966
3	If I cannot think of a Chinese word, I use a word or phrase that means the same thing.	2.88	0.951
4	I try to guess what the other person will say next in Mandarin.	2.77	0.972
5	I make up new words if I do not know the right ones in Mandarin.	2.45	1.0
6	I read Mandarin without looking up every new word.	2.21	0.904

Tables 18–20 show the complete item-level profile for female learners. The summary below focuses on the most and least frequently reported behaviours.

Among female learners, relating new Mandarin knowledge to prior knowledge ranked highest within memory strategies ($M = 3.42$, $SD = 0.744$), followed by lesson revision ($M = 3.22$, $SD = 0.752$). Flashcard use ranked lowest ($M = 2.80$, $SD = 1.021$).

For cognitive strategies among females, pronunciation practice ranked highest ($M = 3.67$, $SD = 0.806$). The least frequently reported behaviours were writing in Mandarin ($M = 2.11$, $SD = 0.991$), initiating conversations ($M = 2.38$, $SD = 1.015$), and reading for pleasure ($M = 2.58$, $SD = 0.989$).

For compensation strategies, guessing unfamiliar Chinese words and using gestures were the joint highest-rated behaviours (both $M = 3.23$). Reading Mandarin without looking up every unfamiliar word was the least frequently reported strategy ($M = 2.21$, $SD = 0.904$).

DISCUSSION

6.1 Overall Pattern of Direct Language Learning Strategy Use

All three direct strategy categories were used at a moderate level. Memory strategies had the highest mean ($M = 3.1061$, $SD = 0.57390$), followed by cognitive ($M = 2.8931$, $SD = 0.59880$) and compensation strategies ($M = 2.8397$, $SD = 0.65714$). The repeated-measures ANOVA confirmed a significant effect of strategy type, $F(1.850, 821.372) = 64.453$, $p < .001$. Bonferroni-adjusted comparisons showed that memory strategies were used more often than both cognitive and compensation strategies, while the latter two did not differ significantly.

This ordering—memory, cognitive, then compensation—matches the pattern reported by Eng et al. (2022) for Malaysian Malay undergraduates learning Mandarin. It differs, however, from Chen and Zhang’s (2024) Central Asian sample, where compensation strategies were used most often and memory strategies least often. The contrast is a useful reminder that strategy profiles are shaped by the learners and the context in which learning takes place.

The moderate use of cognitive and compensation strategies also shows that these learners were not relying on memorisation alone. They practised and analysed the language, inferred meaning, and found ways to continue when their Mandarin knowledge was incomplete. This fits the view that successful language learning draws on a repertoire of complementary strategies rather than on one preferred technique (Oxford, 1990; Griffiths, 2015). Malaysian research has likewise linked cognitive strategy use with metacognitive self-regulation and resource management (Neo et al., 2024) and connected strategy use with Chinese-language achievement (Leong et al., 2024). What stands out in the present data, then, is not a lack of strategic behaviour but an uneven repertoire: retention and controlled practice are more established than autonomous production and communicative risk-taking.

6.2 Memory Strategies: Association, Review, and Retention

At the item level, the most frequently reported memory strategy was linking new Mandarin knowledge with what learners already knew ($M = 3.41$, $SD = 0.744$), which fell within the high-frequency band. Revision ($M = 3.23$), sound-image association ($M = 3.21$), using new words in sentences ($M = 3.15$), and forming mental images ($M = 3.14$) were also used relatively often. This pattern suggests that learners tend to remember Mandarin by building meaningful connections and revisiting material, rather than depending only on rote memorisation. That is understandable in a language where learners must connect unfamiliar sounds, tones, meanings, written forms, and sentence patterns.

Flashcards were the least frequently reported memory strategy ($M = 2.84$), while rhymes, physical enactment, and remembering the spatial location of words were also less common than association and revision. This gives teachers a useful starting point. Learners already make connections between new and existing knowledge, but their range of mnemonic techniques could be expanded. Semantic grouping, imagery, sentence creation, retrieval

practice, and spaced review can be introduced alongside familiar strategies so that memory work supports later communicative use rather than remaining an end in itself.

6.3 Cognitive Strategies: Strong Pronunciation Practice but Limited Autonomous Production

Pronunciation practice stood out as the most frequently used cognitive strategy ($M = 3.63$, $SD = 0.817$) and one of the strongest items in the instrument. This is not surprising in Mandarin, where tonal and segmental accuracy affect intelligibility directly. The finding is consistent with Malaysian studies that treat pronunciation learning as an important strategic domain (Ting & Ooi, 2023, 2025) and with Neo et al. (2024), who identified rehearsal as a strongly endorsed cognitive component among introductory Mandarin learners. Repetition and form-focused practice therefore appear to remain central to early Mandarin learning in the Malaysian context.

Learners also reported moderate use of several other cognitive strategies, including analysing Chinese words into familiar parts, watching Mandarin-language entertainment, imitating native speakers, repeating new words, looking for patterns, summarising, and avoiding word-for-word translation. These behaviours suggest active attempts to work with and interpret the language rather than simply memorise isolated forms. Pang et al. (2024) similarly showed that college learners draw on a varied set of strategies to handle the linguistic and cultural demands of Chinese.

A different picture emerges for more autonomous forms of language use. Reading for pleasure ($M = 2.60$), starting conversations in Mandarin ($M = 2.43$), and writing notes, messages, letters, or reports ($M = 2.18$) were among the least frequently reported cognitive behaviours. Learners seem more comfortable rehearsing pronunciation and analysing language than initiating extended speaking, reading, or writing on their own. Given the link between strategy use and Chinese-language achievement reported by Leong et al. (2024), this imbalance deserves attention. Classroom practice can gradually move from pronunciation and vocabulary work into short peer exchanges, information-gap tasks, graded reading, caption writing, messaging, reflective journals, and other low-stakes activities that require meaningful use of Mandarin.

6.4 Compensation Strategies and Tolerance of Ambiguity

For compensation strategies, guessing the meaning of unfamiliar Chinese words ($M = 3.28$, $SD = 0.955$) and using gestures when a word could not be recalled ($M = 3.23$, $SD = 0.967$) were the most common behaviours. These strategies show that learners can use context and non-verbal resources to keep understanding or communication going when they do not know every word. That ability is especially useful in foreign-language communication, where incomplete knowledge is normal.

Two compensation behaviours were much less common: reading without looking up every unfamiliar word ($M = 2.26$) and creating a new word when the correct Mandarin form was unknown ($M = 2.56$). This may indicate some reluctance to continue reading or communicating when meaning is uncertain, although tolerance of ambiguity was not measured directly. The relatively low compensation mean also contrasts with Chen and Zhang's (2024) Central Asian sample. In teaching, learners could be given more practice with contextual guessing, paraphrasing, circumlocution, gesture, selective dictionary use, and continuing a task even when their understanding is incomplete. Importantly, the present quantitative design cannot establish why these behaviours were underused. Possible influences may include limited opportunities to use Mandarin outside the classroom, confidence in spontaneous communication, familiarity with teacher-directed learning practices, perceived linguistic difficulty, or reluctance to make errors; however, these possibilities should be treated as hypotheses rather than findings because they were not measured directly.

6.5 Male and Female Learners

Male and female learners showed the same broad pattern: memory strategies were the most frequently used category for both males ($M = 3.1837$) and females ($M = 3.0833$), and all three categories fell within the moderate range. Among males, memory strategies were used significantly more often than cognitive and compensation strategies, while cognitive and compensation use did not differ significantly. Among females, memory was again

highest, but all three pairwise comparisons were significant, including the difference between cognitive and compensation strategies.

The item-level results also reveal some descriptive differences. Male learners reported relatively frequent use of guessing unfamiliar words ($M = 3.43$), while female learners reported particularly high use of pronunciation practice ($M = 3.67$) and linking new Mandarin knowledge with prior knowledge ($M = 3.42$). These patterns fit with recent research suggesting that gender differences in strategy use are selective rather than uniform. Chen and Zhang (2024) found no overall gender difference but did observe differences in particular subcategories; Ting and Ooi (2025) reported a significant difference only for cognitive pronunciation strategies; and Eng et al. (2022) found a gender difference in compensation strategies in Malaysian MFL learning.

These patterns should still be interpreted cautiously. The present analyses compare strategy categories within the male group and within the female group; they do not test males directly against females. The observed differences in means therefore cannot be taken as evidence that gender causes or significantly predicts strategy use. A direct between-group analysis would be needed for that conclusion. This caution is consistent with recent Chinese-learning-strategy research, where gender effects vary across samples and strategy categories (Chen & Zhang, 2024; Lee, 2025; Ting & Ooi, 2025).

6.6 Theoretical and Pedagogical Implications

The findings support a contextual view of LLS. Oxford's (1990) categories remain useful for organising learner behaviour, but the frequency and usefulness of particular strategies are shaped by language demands, motivation, proficiency, learning duration, and the instructional setting (Chen & Zhang, 2024; Cheng et al., 2026). The memory-dominant pattern found here should therefore be read as one profile among Malay MFL learners, not as an ideal sequence that other Mandarin learners should follow.

The findings can also be interpreted from the perspective of self-regulated language learning and communicative competence. The predominance of memory strategies, together with relatively frequent pronunciation practice, suggests that learners have developed strategies for encoding, rehearsing, and consolidating linguistic forms. However, the less frequent use of conversation initiation, independent writing, pleasure reading, and reading without consulting every unfamiliar word suggests that strategic control may not yet extend equally to autonomous and communicatively demanding language use. From a self-regulatory perspective, effective strategy use involves not only possessing individual techniques but also selecting and adapting them according to task demands, learning goals, and communicative conditions. The present pattern therefore points to a need to help learners move from predominantly form-focused and rehearsal-oriented strategy use towards more flexible strategic regulation during meaningful language use. At the same time, communicative strategies such as initiating interaction, paraphrasing, guessing from context, and continuing despite lexical gaps require learners to tolerate uncertainty and take communicative risks. Strategy instruction should therefore create structured opportunities for learners to deploy these strategies during authentic speaking, reading, and writing rather than merely increasing the number of strategies they know.

From a teaching perspective, the aim should be to build on strategies learners already use while widening the range of strategies available to them. Association, revision, and pronunciation practice can remain important strengths, but they should lead into meaningful language use rather than stay as isolated routines. Pronunciation work can move into pair work, role-play, short presentations, and spontaneous interaction. Less frequently used reading and writing strategies can be supported through graded texts, short digital messages, captions, and notes. Learners can also be encouraged to deal with uncertainty through contextual guessing, paraphrase, gesture, circumlocution, and selective dictionary use. This kind of strategy instruction is consistent with evidence linking Chinese-learning outcomes to strategy use and showing that cognitive strategies operate alongside broader self-regulatory processes (Leong et al., 2024; Neo et al., 2024).

6.7 Limitations and Directions for Future Research

Several limitations should be considered when interpreting the findings. First, the study employed a cross-sectional design and therefore provides a snapshot of learners' reported strategy use at one point in time.

Although participants were enrolled in Introductory Mandarin Levels I, II, and III, the design does not allow conclusions to be drawn about how individual learners' strategies develop as their Mandarin proficiency increases. Future longitudinal research could follow the same learners across proficiency levels to examine changes in their strategic repertoires over time. Second, the study relied on self-reported questionnaire data. Reported strategy frequency may be influenced by recall, interpretation of questionnaire items, or social-desirability effects and may not correspond fully to learners' actual behaviour. Future studies could triangulate questionnaire findings with interviews, learning diaries, classroom observations, think-aloud protocols, stimulated recall, or digital learning traces. Third, the gender distribution was unequal, with 344 female and 101 male participants. In addition, the gender-specific analyses examined differences among strategy categories within each gender group rather than directly testing male-female differences. Accordingly, the gender-related patterns should be treated as descriptive and interpreted cautiously. Future studies could employ more balanced or stratified sampling and appropriately powered between-group analyses. Fourth, several potentially important contextual and learner variables were outside the scope of the present analysis. Prior exposure to Mandarin, proficiency, learning duration, motivation, frequency of contact with Mandarin speakers, socioeconomic background, confidence, and cultural or classroom-related factors may influence learners' strategic choices. Future research could incorporate these variables in multivariate analyses to determine their relative contribution to strategy use. Fifth, this study focused exclusively on Oxford's direct strategies—memory, cognitive, and compensation strategies—and therefore did not capture metacognitive, affective, and social processes. Future studies integrating direct and indirect strategies would provide a more comprehensive picture of how learners plan, regulate, manage emotions, interact socially, and engage with Mandarin learning. Finally, the study identifies comparatively underused behaviours but cannot establish why learners avoid or use them less frequently. Qualitative or mixed-method research could examine whether low use of autonomous reading, writing, conversational initiation, and risk-taking strategies reflects confidence, classroom practices, cultural expectations, perceived task difficulty, limited opportunities for communication, or other contextual factors. Comparative research involving learners from different Malaysian universities and different linguistic or educational backgrounds would also help determine the extent to which the present patterns are institution-specific or more broadly characteristic of Mandarin learning in Malaysia.

CONCLUSION

This study examined direct language learning strategies among 445 Malay undergraduates learning Mandarin at a Malaysian public university. All three strategy categories were used at moderate levels, with memory strategies used significantly more often than cognitive and compensation strategies. At the item level, learners reported frequent use of prior-knowledge association and pronunciation practice, but less frequent use of conversation initiation, independent writing, reading for pleasure, and reading without checking every unfamiliar word. The overall picture is therefore one of an uneven strategy repertoire: retention and controlled practice are well established, whereas autonomous and risk-tolerant language use is less common.

This does not mean that memory strategies are inherently better. Rather, the findings suggest that learners may benefit from a broader and more flexible repertoire. Existing strengths in association, revision, and pronunciation can be used as a foundation for more purposeful speaking, reading, writing, contextual inference, and communication when understanding is incomplete. Because males and females were not compared directly, the gender-related patterns reported here should remain descriptive rather than inferential.

By combining category-level comparisons with item-level behaviours, the study offers a more detailed picture of how Malay undergraduates approach Mandarin learning and where further support may be useful. The findings also show that identifying strategy frequency is only a first step: understanding how strategy use develops and why particular autonomous or communicative strategies remain underused requires attention to motivation, proficiency, confidence, cultural and classroom conditions, and opportunities for meaningful interaction. Future longitudinal, qualitative, mixed-method, and multi-institutional research could therefore examine how direct and indirect strategies change over time and how they relate to proficiency, achievement, and communicative performance.

REFERENCES

1. Adan, D. A., & Hashim, H. (2021). Language learning strategies used by art school ESL learners. *Creative Education*, 12(3), 653–665. <https://doi.org/10.4236/ce.2021.123045>
2. Amalia, P. A., & Aridah. (2018). Characteristics of a good language learner in relation to her language learning strategies. *Proceedings of the 65th TEFLIN International Conference*, 65(1), 17–21.
3. Arisman, R. (2020). The relationship between direct language learning strategies and English learning proficiency at senior high school students. *J-SHMIC: Journal of English for Academic*, 7(2), 41–51. [https://doi.org/10.25299/jshmic.2020.vol7\(2\).5339](https://doi.org/10.25299/jshmic.2020.vol7(2).5339)
4. Chang, S. F., & Huang, S. C. (1999). Language learning motivation and language learning strategies of Taiwanese EFL students (ERIC Document No. ED428561). Educational Resources Information Center.
5. Chen, R., & Zhang, L. (2024). On Chinese learning strategies of learners from Central Asian countries: An analysis of gender, age, and learning duration effects. *Frontiers in Psychology*, 15, 1372005. <https://doi.org/10.3389/fpsyg.2024.1372005>
6. Cheng, Z., Zheng, M., Yan, Y., & Zhu, C. (2026). L2 Chinese learning motivation and learning strategies: A study about L2 Chinese learners among European universities. *Journal of Second Language Studies*, 9(1), 101–139. <https://doi.org/10.1075/jsls.00043.che>
7. Cohen, A. D. (1998). *Strategies in learning and using a second language*. Longman.
8. Eng, S. B., Soo, Y.-P., Lai, Y. Y., Gan, K. C., & Yeap, C. K. (2022). Online direct learning strategies of Mandarin as a foreign language learners during COVID-19 pandemic period in a Malaysian university. *International Journal of Academic Research in Business and Social Sciences*, 12(11), 1188–1198. <https://doi.org/10.6007/IJARBSS/v12-i11/14840>
9. Gan, K. C., Lai, Y. Y., Soo, Y.-P., Eng, S. B., & Yeap, C. K. (2022). Indirect learning strategies of Mandarin as a foreign language learners during online learning in COVID-19 pandemic period. *International Journal of Academic Research in Progressive Education and Development*, 11(3), 1509–1519. <https://doi.org/10.6007/IJARPED/v11-i3/14992>
10. Gavriilidou, Z., & Psaltou-Joycey, A. (2009). Language learning strategies: An overview. *Journal of Applied Linguistics*, 25, 11–25.
11. Griffiths, C. (2015). What have we learnt from ‘good language learners’? *ELT Journal*, 69(4), 425–433. <https://doi.org/10.1093/elt/ccv040>
12. Hanafiah, A. D., Kadir, F. A., Kamaruddin, S. M., Hussin, S. N. L., & Hashim, H. (2021). Language learning strategies employed by successful language learners. *International Journal of Academic Research in Business and Social Sciences*, 11(6), 1363–1378. <https://doi.org/10.6007/IJARBSS/v11-i6/10095>
13. Hasram, S., & Singh, B. K. A. (2021). Vocabulary learning strategies of good language learners from an international school. *Scientific Research Journal*, 9(2), 31–37. <https://doi.org/10.31364/SCIRJ/v9.i02.2021.P0221843>
14. Husain, D. (2011). *Fostering autonomous learning inside and outside the classroom in language learning*. Badan Penerbit UNM.
15. Lee, E. H. (2025). An analysis of Chinese language learning strategies of Korean learners and educational suggestions: Focused on academic achievement and the general characteristics of learners. *Journal of Chinese Language and Literature*, 98, 343–373. <https://doi.org/10.15792/clsyn..98.202504.343>
16. Leong, C. M., Salleh, U. K. M., & Chew, F. P. (2024). Effect of language learning strategies on language achievement among undergraduate students of Chinese as foreign language in Malaysia. *International Journal of Education, Psychology and Counselling*, 9(54), 593–599. <https://doi.org/10.35631/IJEPC.954045>
17. Lestari, M., & Wahyudin, A. Y. (2020). Language learning strategies of undergraduate EFL students. *Journal of English Language Teaching and Learning*, 1(1), 25–30.
18. Luu, H. V. (2025). A review of research on Chinese learning strategies and suggestions for research on Vietnamese learners. *Ho Chi Minh City University of Education Journal of Science*, 22(2), 317–328. [https://doi.org/10.54607/hcmue.js.22.2.4257\(2025\)](https://doi.org/10.54607/hcmue.js.22.2.4257(2025))
19. Mulyani, S. (2020). Language learning strategies of successful EFL learners. *International Journal in Applied Linguistics of Parahikma*, 2(1), 31–39.

20. Neo, Y. F., Chan, J. Y., Goh, C. S., & Zhang, A. H. (2024). The influence of metacognitive self-regulation on learning strategies in Mandarin learning. *Quantum Journal of Social Sciences and Humanities*, 5(2), 87–103. <https://doi.org/10.55197/qjssh.v5i2.347>
21. Norman, E. (2020). Why metacognition is not always helpful. *Frontiers in Psychology*, 11, 1537. <https://doi.org/10.3389/fpsyg.2020.01537>
22. O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.
23. Othman, N. A., Mohamed, M. N. A., Powzi, N. F. A., & Jamari, S. (2022). A case study of English language learning strategies used by engineering students in Malaysia. *Malaysian Journal of Social Sciences and Humanities*, 7(1), 261–269. <https://doi.org/10.47405/mjssh.v7i1.1216>
24. Oxford, R. L. (1989). Use of language learning strategies: A synthesis of studies with implications for strategy training. *System*, 17(2), 235–247. [https://doi.org/10.1016/0346-251X\(89\)90036-5](https://doi.org/10.1016/0346-251X(89)90036-5)
25. Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Heinle & Heinle.
26. Pang, Y., Hashim, H., & Mohd Said, N. E. (2024). Learning strategies for Chinese as foreign language learners in college: A qualitative study. *Forum for Linguistic Studies*, 6(4), 463–473. <https://doi.org/10.30564/fls.v6i4.6795>
27. Rubin, J. (1975). What the 'good language learner' can teach us. *TESOL Quarterly*, 9(1), 41–51. <https://doi.org/10.2307/3586011>
28. Salam, U., Sukarti, & Arifin, Z. (2020). An analysis of learning styles and learning strategies used by a successful language learner. *Journal of English Teaching*, 6(2), 111–121. <https://doi.org/10.33541/jet.v6i2.1734>
29. Seng, H. Z., Mustafa, N. C., Halim, H. A., Rahmat, N. H., & Amali, N. A. K. (2023). An investigation of direct and indirect learning strategies in learning foreign languages. *International Journal of Academic Research in Business and Social Sciences*, 13(3), 322–338. <https://doi.org/10.6007/IJARBSS/v13-i3/16492>
30. Teng, M. F. (2023). Language learning strategies. In Z. E. Wen, R. L. Sparks, A. Biedroń, & M. F. Teng (Eds.), *Cognitive individual differences in second language acquisition: Theories, assessment and pedagogy* (pp. 147–174). De Gruyter Mouton. <https://doi.org/10.1515/9781614514749-008>
31. Teoh, S. H., Heng, B. C., Neo, Y. F., Chan, J. Y., & Tan, J. Y. Y. (2022). Strategies use in Chinese language learning among non-native Chinese language learners in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 12(11), 2985–3005. <https://doi.org/10.6007/IJARBSS/v12-i11/15332>
32. Ting, H.-L., & Ooi, S. E. (2023). Mandarin pronunciation learning strategies of MFL learners in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 13(2), 1571–1585. <https://doi.org/10.6007/IJARBSS/v13-i2/16239>
33. Ting, H.-L., & Ooi, S. E. (2025). Exploring the use of Mandarin pronunciation learning strategies among MFL learners in Malaysia: Analysis of gender differences. *Journal of Academia*, 13(1), 82–93. <https://doi.org/10.24191/joa.v13i1.5029>
34. Wenden, A. L. (1987). Conceptual background and utility. In A. L. Wenden & J. Rubin (Eds.), *Learner strategies in language learning* (pp. 3–13). Prentice-Hall.
35. Widharyanto, B., & Binawa, H. (2020). Learning style and language learning strategies of students from various ethnics in Indonesia. *Jurnal Cakrawala Pendidikan*, 39(2), 480–492. <https://doi.org/10.21831/cp.v39i2.28173>
36. Wong, L. L. C., & Nunan, D. (2011). The learning styles and strategies of effective language learners. *System*, 39(2), 144–163. <https://doi.org/10.1016/j.system.2011.05.004>