

Metaphor Comprehension Strategies among Chinese L2 Learners: Exploring the Impact of Varying Language Proficiency

LIAO LIAO DING

ANGKANA TONGPOON-PATANASORN*

Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand

*Corresponding author email: angton@kku.ac.th

Article information	Abstract
<p>Article history: Received: 30 Mar 2024 Accepted: 25 Aug 2025 Available online: 27 Aug 2025</p> <p>Keywords: Metaphor comprehension Strategies Chinese Different language proficiency</p>	<p><i>This study investigates the strategies employed by Thai learners of Chinese as a second language (L2) to comprehend metaphors, focusing on how language proficiency shapes their approach. Using a mixed-methods design, 29 participants—ranging from beginner to advanced levels—completed metaphor interpretation tasks and provided self-reports on their comprehension strategies. These strategies were categorized into cognitive, linguistic, and contextual types, revealing distinct patterns associated with proficiency levels. Quantitative analysis showed that advanced learners more frequently used contextual cues and inferential reasoning, while beginners tended to rely on literal translation or random guess. Notably, “random guess” emerged as a significant predictor of comprehension, challenging traditional models that emphasize syntactic and semantic decoding in L2 metaphor processing. Findings suggest that metaphor comprehension among L2 learners involves a dynamic interplay of language skills, familiarity with figurative language, and adaptive strategy use. This study underscores the importance of targeted metaphor instruction in L2 education to enhance interpretative skills, especially at intermediate proficiency levels, where diversified strategy use becomes essential.</i></p>

INTRODUCTION

Metaphor, deeply rooted in human cognition, serves as a powerful tool for expressing complex ideas, engaging the imagination, and facilitating communication (Lakoff & Johnson, 1980). By drawing analogies between concepts and substituting words or phrases, metaphors allow speakers to describe people, objects, or experiences with vivid, often unexpected attributes (Lakoff & Johnson, 1980). For example, in the metaphor “LOVE IS A JOURNEY,” the abstract concept of love is represented as a journey, where lovers are seen as companions moving toward a shared goal. Such figurative language is foundational to human cognition, playing a key role in how people think and communicate. Metaphors enrich everyday language by making expressions more vivid, relatable, and expressive (Lakoff, 1993; Lakoff & Turner, 1989; Shutova et al., 2013). Moreover, metaphor extends beyond language, shaping perception and understanding by creating symbolic representations that connect abstract and concrete ideas.

The study of metaphor in second language (L2) or foreign language learning gained traction in the 1980s, particularly within the cognitive linguistic field, as researchers sought to understand how L2 learners comprehend figurative language. Unlike native speakers, who process metaphors intuitively, L2 learners often find conventional metaphors unfamiliar, requiring additional cognitive resources to interpret them (Lakoff & Turner, 1989). Successful metaphor comprehension in an L2 context often demands not only linguistic knowledge but also an understanding of cultural nuances. As Littlemore and Low (2006) observed, metaphors are deeply tied to cultural concepts, which play a crucial role in both learning and using an L2. To communicate effectively, L2 learners must navigate these cultural and conceptual nuances, as they impact both the appropriateness and fluency of metaphor usage. However, cultural and linguistic differences between an L1 and L2 can complicate metaphor comprehension, posing challenges for L2 learners who may lack access to native-like cultural frameworks (Xu & Zhao, 2014).

In formal L2 learning environments, limited exposure to the target culture can further restrict L2 learners' ability to acquire metaphorical language in authentic contexts. As a result, L2 learners may experience "negative conceptual transfer," where L1 conceptual frameworks interfere with L2 comprehension (Charteris-Black, 2002). This lack of cultural grounding, coupled with the linguistic complexity of figurative language, can hinder learners' ability to interpret metaphors accurately. Consequently, many L2 learners rely on deliberate strategies to navigate metaphor comprehension, a process that differs substantially from the intuitive metaphor processing observed in L1 speakers.

Given these cultural and cognitive challenges, effective metaphor comprehension in L2 learning contexts often hinges on targeted strategy use. Research into strategy use for L2 figurative language began with Cooper (1999), who analyzed strategies that English as a Second Language (ESL) learners use to interpret idioms. While idioms typically have fixed meanings, metaphors are often more flexible and require adaptive, interpretive strategies (Burbules et al., 1989). Understanding these strategies is crucial for developing a comprehensive model of L2 figurative language processing. Although several studies (e.g., Cooper, 1999; Su & Chen, 2020; Xu & Zhao, 2014) have explored strategy use among English as a Foreign Language (EFL) or ESL learners, few studies have focused on learners of languages with significantly different linguistic and cultural structures, such as Chinese. This gap highlights the need for research into metaphor comprehension strategies among Chinese L2 learners at various proficiency levels, as Chinese presents unique challenges in metaphor comprehension due to its distinct cultural and linguistic context.

This study is significant in advancing understanding of metaphor comprehension strategies among L2 learners of Chinese, a language rich with culturally embedded metaphors distinct from those found in English. By identifying how strategy use varies by proficiency level, this research provides insights into the cognitive and cultural factors that shape L2 learners' comprehension. Practically, these findings have implications for L2 instruction, suggesting ways to enhance learners' metaphor comprehension and communicative competence through targeted strategy training.

Accordingly, this study aims to explore the metaphor comprehension strategies used by Chinese L2 learners with different proficiency levels and to examine variations in strategy use across these groups. Three research questions guide this investigation: 1) What strategies do L2 Chinese learners with varying proficiency levels use for metaphor comprehension? 2) Are there discernible differences in strategy use among different proficiency levels, and if so, how do these differences manifest? 3) Which strategies significantly contribute to successful metaphor comprehension in Chinese as an L2?

LITERATURE REVIEW

Theories of L1 metaphor comprehension

Various models have been developed to explain metaphor comprehension in first language (L1) contexts, each providing valuable insights into how metaphors are processed. Conceptual Metaphor Theory (Lakoff & Johnson, 1980) posits that metaphor comprehension involves mapping abstract concepts onto concrete experiences through structured correspondences between a source and target domain. However, this model has been critiqued for its reliance on unidirectional mappings and limited consideration of context, which can influence interpretation by aligning conceptual frameworks to suit specific situations. In contrast, the Class-inclusion Model (Glucksberg & Keysar, 1990) proposes a context-sensitive, symmetric integration process, where source and target domains converge within an overarching category. Although this model allows for flexibility, it does not fully address the context-specific inferences required in complex metaphor interpretation.

Relevance Theory (Sperber & Wilson, 2008) attempts to address these limitations by emphasizing that contextual cues shape an ad hoc concept within a metaphorical utterance, thus enabling a dynamic, context-dependent interpretation. However, this model may oversimplify conventional metaphors, which often draw on established conceptual mappings and shared cultural frameworks that are not entirely context-dependent. To account for conventionality, the Career of Metaphor Theory (Gentner & Bowdle, 2001) integrates mapping and matching mechanisms, explaining how novel metaphors become conventional over time. For instance, “foot of a mountain” initially requires relational comparison but eventually becomes a fixed expression. This model, however, struggles with metaphors that retain both conventional and novel meanings or are reinterpreted in new contexts. Meanwhile, the Graded Salience Hypothesis (Giora, 1997) suggests that metaphor interpretation is influenced by the salience of a word’s meaning—whether literal or metaphorical—which depends on its familiarity and relevance in a given context.

These L1 models assume shared conceptual knowledge and intuitive metaphor processing, which may not apply to L2 learners, who often lack such automatic connections. Consequently, L1 models may not fully capture the deliberate and strategic processes used by L2 learners to interpret metaphors, especially those from culturally distinct backgrounds.

L2 metaphor comprehension

Research on L2 metaphor comprehension strategies is still emerging, with studies providing varying insights into how learners at different proficiency levels navigate metaphorical language. Xu and Zhao (2014) examined Chinese EFL learners and found that higher-proficiency learners relied more heavily on L2-specific knowledge, while lower-proficiency learners used strategies such as L1 knowledge, mental imagery, guessing, and structural analysis. However, both proficiency groups showed a similar preference for sentence context and literal interpretation as core strategies, suggesting some universal tendencies across levels. Limitations in their study, including time constraints, may have restricted participants' ability to fully articulate their cognitive processes, indicating a need for less restrictive designs in future studies. Building on this foundation, Su and Chen (2020) also investigated Chinese EFL learners, using translation tasks and retrospective interviews to identify strategies such as embodied simulation, sentence context, and encyclopedic knowledge. While these findings enrich our understanding of L2 metaphor comprehension, the retrospective interviews may have influenced participants' strategy reports, highlighting the potential benefit of real-time data collection methods for capturing authentic cognitive processes.

It is important to note that most studies on L2 metaphor comprehension have concentrated on English learners, leaving significant gaps in understanding strategies used by learners of languages with different linguistic and cultural frameworks, such as Chinese. Addressing this gap, Wu et al. (2021) investigated Thai and Malay learners of Chinese and identified diverse strategies, including literal interpretation, grammar analysis, random guess, and associative analogy. Although sentence context and word meaning interpretation were effective, general knowledge was less successful, illustrating the complexity of metaphor comprehension in Chinese as an L2. This study emphasizes the challenges of metaphor comprehension in a culturally distinct language and reinforces the need for further research into strategy use across varying proficiency levels. Together, these studies indicate a progression toward understanding L2 metaphor comprehension as a multi-faceted process influenced by proficiency, linguistic background, and strategy selection, and they call for more nuanced, cross-linguistic investigations to develop a comprehensive model of metaphor processing in L2 learners.

Metaphoric competence in L2

Metaphoric competence, the ability to recognize and use metaphors effectively, is essential for L2 proficiency, as it enhances communicative effectiveness and cultural understanding (Danesi, 1992; Littlemore, 2001). This skill facilitates more native-like communication, especially among intermediate and advanced learners (Hashemian & Nezhad, 2007; Yao, 2019). However, recent studies have yielded mixed results on the relationship between L2 proficiency and metaphor comprehension. Zhang (2017) found a positive correlation between proficiency and metaphor comprehension, while Yao (2019) observed a moderate correlation, noting that proficiency's impact diminishes at higher levels. Shao (2021) reported that high-proficiency learners exhibited stronger metaphorical competence than low-proficiency learners, yet both groups demonstrated low overall comprehension levels, indicating that factors beyond proficiency may influence metaphoric competence. Collectively, these studies suggest that

while proficiency plays a role, it is not the sole determinant of L2 metaphor comprehension. Strategic skills and cultural knowledge are also critical, underscoring the need for further research to clarify these relationships and to develop instructional practices that support comprehensive metaphor comprehension among L2 learners.

METHOD

The present study was part of the main study on metaphor comprehension and processing among L2 learners of Chinese, and it presented the preliminary findings of the main study.

Participants

Participants were recruited from an undergraduate Chinese language program at a university in China. Selection criteria required that participants were enrolled in a Chinese major and had completed at least one semester, ensuring a minimum level of language exposure. Recruitment was conducted through classroom announcements and university posters, inviting students to voluntarily participate in the study. A demographic questionnaire was used to gather background information, including gender, L1, age, field of study, Chinese proficiency level, and length of study in China.

The final sample consisted of 29 undergraduates majoring in Chinese, with detailed demographic data provided in Appendix A. As shown in Table 1, 76% of participants were female ($N = 22$) and 24% were male ($N = 7$). The majority were native Thai speakers ($N = 19$, 66%), followed by speakers of Kinyarwanda ($N = 4$, 14%), Vietnamese ($N = 3$, 10%), Lao ($N = 1$, 3%), Indonesian ($N = 1$, 3%), and Mongolian ($N = 1$, 3%). The participants' average age was 21.5 years. Based on their Chinese Proficiency Test (HSK) scores, participants were divided into three proficiency groups: low proficiency ($N = 10$, 34%) for those at HSK Level 4, intermediate proficiency ($N = 9$, 31%) at HSK Level 5, and advanced proficiency ($N = 10$, 34%) at HSK Level 6. Most participants ($N = 21$, 72%) had studied in China for two years or more, while a smaller group ($N = 8$, 28%) had studied in China for at least one year but less than two years.

Table 1
Participants' demographic information

	<i>N</i>	%
Gender		
Female	22	76
Male	7	24
L1		
Thai	19	66
Kinyarwanda	4	14
Vietnamese	3	10
Lao	1	3
Indonesian	1	3
Mongolian	1	3

	<i>N</i>	%
Age		
20 yrs	12	41
21 yrs	6	21
22 yrs	3	10
23 yrs	3	10
24 yrs	3	10
25 yrs	2	7
Proficiency level		
Low	10	34
Intermediate	9	31
High	10	34
Years in China		
1 yr and above, less than 2 yrs	8	28
2 yrs and above	21	72

Materials

A metaphorical test was used to assess Chinese metaphor comprehension and the strategies employed. Initially, 40 metaphor expressions, covering a range of conventional source domains, were adapted from a Chinese metaphor dictionary (Su, 2009) and previous studies (Xu & Zhao, 2014; Zhang, 2016). Each expression was accompanied by a short contextual description derived from an online Chinese corpus to aid comprehension. The sentences were modified slightly to align with participants' Chinese proficiency, ensuring that sentence complexity was appropriate for their language level.

The metaphorical sentences were further evaluated for metaphorical degree, acceptability, and usability, following the methodology of Xu and Zhao (2014). First, two native Chinese language experts independently rated the metaphorical degree of each sentence on a 5-point Likert scale: 5 – highly metaphorical, 4 – moderately metaphorical, 3 – uncertain, 2 – mildly metaphorical, and 1 – non-metaphorical. Sentences with an average score below 3 were excluded from further analysis, resulting in the removal of six sentences that did not meet the metaphorical threshold.

Next, the acceptability and usability of the remaining sentences were rated using a 3-point Likert scale. For acceptability: 3 – acceptable, 2 – uncertain, and 1 – unacceptable; and for usability: 3 – frequently used, 2 – occasionally used, and 1 – rarely used. Nine sentences scoring below an average of 2.5 for acceptability or 2.0 for usability were removed. In total, 25 items were retained, randomized for the formal test, and verified for metaphorical meanings using authoritative Chinese dictionaries. Test reliability, assessed using Cronbach's α , yielded a coefficient of .72, indicating satisfactory internal consistency.

Data collection

During the recruitment stage, the participants received a consent form along with an information sheet detailing the study's objectives, procedures, and data collection requirements. Only those who provided informed consent were included in the study. After recruitment, the participants attended an online training session via Zoom, where the study's purpose and data

collection procedures were further clarified. In this session, the participants completed a sample metaphorical test and received instructions on how to type their interpretations of each target metaphor and their reasoning. Typing responses, rather than handwriting, was selected to reduce the cognitive load of recalling Chinese character forms, allowing the participants to focus on providing direct and immediate responses.

Following training, the main metaphorical test was administered without time constraints, allowing participants ample time for comprehensive responses. On average, participants took approximately 54 minutes to complete the test. Responses were not limited by word count, providing participants flexibility to elaborate, which allowed for variation in response length and depth based on individual engagement and interpretation strategies. To facilitate systematic data collection, the metaphorical test was hosted on the Sojump platform, with a secure link distributed to all the participants, who were instructed to access the link and submit their answers online.

The participants' responses on metaphor comprehension were assessed twice by the main researcher, with a two-week interval between assessments to ensure reliability, following the recommendations of Bagheri and Yamini (2020). The responses were scored based on predetermined standard answers, with one point awarded for each correct answer and zero points for incorrect answers. Intra-rater reliability was calculated using Pearson correlation, yielding a high consistency value of .87.

Data analysis

To address the first research question on the strategies employed by the participants, a combined deductive and inductive approach was used. The primary analysis applied a deductive coding scheme (see Table 2), developed from established comprehension strategies identified in previous research (Su & Chen, 2020; Wu et al., 2021; Xu & Zhao, 2014). The coding scheme categorized strategies into knowledge-based sources (L1 knowledge, L2 knowledge, and literal translation) and inferential strategies (sentence context, random guess, and psychological imagery).

Table 2
A coding scheme of metaphor comprehension strategies

	Code	Type of Strategy	Description	Related Expressions
Knowledge-Based Source	FK	L1 Knowledge	Using L1 knowledge (linguistic and cultural knowledge, values, beliefs, etc.) to figure out the meaning of the metaphor	"It means ... in my mother language." "There is the same / similar saying in my mother language." "We use this phrase in my country."
	SK	L2 Knowledge	Using L2 knowledge (linguistic and cultural knowledge, values, beliefs, etc.) to figure out the meaning of the metaphor	"It is a phrase frequently adopted by the Chinese." "I've seen /learned this phrase before."
	LT	Literal Translation	Using the literal translation of the metaphor as a key to its figurative meaning	"This phrase refers to / literally means"

	Code	Type of Strategy	Description	Related Expressions
Inferential Strategy	RG	Random Guess	Supposing the meaning without sufficient information to be sure of being correct	"I took a guess." "I don't know what it means." "I don't know how to describe it."
	SC	Sentence Context	Referring to the information in the context	"Judging from the sentence context." "After reading the whole sentence, I can see it means ..." "Because it says ... at the first half / end of the sentence" "after reading the sentence, ..."
	PI	Psychological Imagery	Making analogies based on associated concepts, semantic collocations, and contextual cues	"It looks like ..." "It is associated with ..."

An inductive approach was incorporated to ensure a comprehensive analysis by examining the participants' responses for any deviations from predefined categories. Following Thomas's (2006) general inductive method, the responses were iteratively reviewed to ensure alignment with the existing coding scheme and to identify any significant patterns that might otherwise be overlooked. Using this approach, participants' explanations of how they interpreted metaphor meanings were independently coded by two coders. The first coder was the study's lead author, while the second coder, a native Chinese speaker and PhD candidate in Chinese Studies, underwent extensive training in applying the coding scheme. During the training, both coders practiced coding sample responses and discussed any discrepancies to reach a consensus. After completing the training, the coders independently coded a 30% sample of responses without any discussion during this phase to assess inter-coder reliability (Mackey & Gass, 2021). This coding process resulted in a high agreement rate of 92.7%, indicating strong consistency and reliability in the coding procedure.

Statistical analyses were conducted using SPSS version 28. To address the second research question on differences in strategy use across proficiency levels, a Kruskal-Wallis H test compared the number of strategies used by each proficiency group. For the third research question, examining the impact of Chinese proficiency on metaphor comprehension, a multiple linear regression analysis was performed.

RESULTS

Q1: What strategies do L2 Chinese learners with different proficiency levels employ for metaphor comprehension?

Types of strategies

In this study, all responses were effectively captured by the existing coding categories, with no new strategies identified. Table 3 presents six strategies – L1 knowledge, L2 knowledge, literal translation, random guess, sentence context, and psychological imagery – each illustrated with examples.

Table 3

Metaphor comprehension strategies employed by L2 Chinese learners

Code	Strategy	Conventional Expression	Examples	Descriptions
FK	L1 Knowledge	It's expressed the same way in my native language; It's similar in my native language.	冬天还很远, 蚂蚁已经开始寻找食物了。(Winter is still <u>a long way off</u> , but the ants have already started searching for food.)	In the native language, it is also used to express location or future time.
SK	L2 Knowledge	I have learned this phrase; similar to ... in Chinese.	她是这儿的头儿, 大家都听她的安排。(She is the <u>leader</u> here, and everyone follows her direction.)	I saw the word '头儿' while watching a TV show.
LT	Literal Translation	Judging from its original meaning; on the surface, it means...	总是抱怨生活、埋怨别人, 这是一种不健康的思想! (Always complaining about life and blaming others is a <u>toxic</u> way of thinking!)	Being unhealthy is equivalent to being sick, so their mindset must be different from that of a healthy person.
RG	Random Guess	I'm not sure, I'm guessing...; I could only take a guess.	在政府的帮助下, 很多企业走出了最困难的阶段。(With government assistance, many companies have <u>moved past</u> their most difficult phase.)	I don't know, but I guess it's already fine now.
SC	Sentence Context	Based on the meaning of the whole sentence; in alignment with the previous...; the sentence indicates...	每次考试前, 不提前复习的话, 我心里就没底。(If I don't review before exams, I <u>feel completely insecure</u> .)	The sentence says that if he doesn't review before the exam, he will definitely lack confidence when it comes time to take the test.
PI	Psychological Imagery	Just like myself...; I feel it's like...; Very similar to...	读书可以了解不知道的事物, 读书是愉快地吸收知识的过程。(Reading allows you to learn about unknown things; it's a joyful process of <u>internalizing</u> knowledge.)	Absorption is an action of plants and animals, just like how we absorb vitamins after taking them or absorb energy from eating.

Strategies by frequency of use

A total of 801 strategies were obtained from all three proficiency levels. Table 4 provides a rank-ordered analysis of comprehension strategies according to frequency of use. The most frequently employed strategy was sentence context ($F = 334$, 41.7%), followed by literal translation ($F = 212$, 26.5%), random guess ($F = 93$, 11.6%), and L2 knowledge ($F = 89$, 11.1%). The least utilized ones were psychological imagery ($F = 49$, 6.1%) and L1 knowledge ($F = 24$, 3.0%). This distribution highlights a predominant reliance on sentence context and literal translation, with comparatively lower use of imagery and L1-based strategies.

Table 4
The usage frequency of each strategy in metaphor comprehension

	Total	SC	LT	RG	SK	PI	FK
Frequency (F)	801	334	212	93	89	49	24
% of All Uses	100%	41.7%	26.5%	11.6%	11.1%	6.1%	3.0%

Strategy co-occurrence

Out of the 725 responses, strategy co-occurrence, indicating the simultaneous utilization of two or more resources during processing, was identified 73 times. This led to six types of strategy combinations in metaphor comprehension, with the respective numbers and percentages detailed in Table 5. The most frequently employed combination was sentence context and literal translation ($F = 44$, 60.3%), followed by sentence context and psychological imagery ($F = 12$, 16.4%), and literal translation and psychological imagery ($F = 10$, 13.7%). Combinations of literal translation and L2 knowledge, sentence context and L2 knowledge, as well as sentence context, literal translation and psychological imagery were the least frequently used strategies ($F = 1$, 1.4%).

Table 5
Combinations of strategy co-occurrence

No.	Strategy Combination	Usage Pattern Frequency (percentage)	Example
1	SC+LT	44 (60.3%)	他的名声不好，只想着往上爬，当大官。(He has a bad reputation, always striving for <u>higher status</u> and eager to <u>secure a high position</u> .) Participant 7: "It means climbing up the career ladder to achieve success and development."
2	SC+PI	12 (16.4%)	每次考试前，不提前复习的话，我心里就 没底 。(If I don't review before exams, I <u>feel completely insecure</u> .) Participant 18: "If I don't prepare for the exam in advance, I will feel very anxious."
3	LT+PI	10 (13.7%)	她是这儿的 头儿 ，大家都听她的安排。(She is the <u>leader</u> here, and everyone follows her direction.) Participant 20: "The head has a brain, and a leader should have the brain."
4	FK+SK	4 (5.5%)	读书可以了解不知道的事物，读书是愉快地 吸收 知识的过程。(Reading allows you to learn about unknown things; it's a joyful process of <u>internalizing knowledge</u> .) Participant 23: "I have learned this phrase in my Chinese class and also understand it in Thai."
5	LT+SK	1 (1.4%)	这里犯罪集团的 耳目 非常多，你在这里调查要特别小心。(There are many <u>informants</u> for the criminal gang here, so be especially careful with your investigating.) Participant 13: "I have learned this phrase in my Chinese class and also understand it in Thai."
6	SC+SK	1 (1.4%)	冬天还很远，蚂蚁已经开始寻找食物了。(Winter is still <u>a long way off</u> , but the ants have already started searching for food.) Participant 18: "Because winter is a time noun, not a distance."

No.	Strategy Combination	Usage Pattern Frequency (percentage)	Example
7	SC+LT+PI	1 (1.4%)	在朋友遇到苦难时需要鼓励他，千万不要泼冷水。(When a friend is struggling, you should encourage them, not <u>discourage</u> them.) Participant 27: "When a friend faces difficulties, you can liken it to a situation when the friend feels very cold without a coat to wear. Instead of offering help, you not only refrain from assisting but also pour cold water around them, making your friend even colder."

Q2: Are there differences in strategy use among the three groups? If so, how do these differences manifest?

According to Table 6, the low-proficiency group utilized a total of 276 strategies. The most commonly employed strategies were sentence context ($F = 142, 51.4\%$) and literal translation ($F = 63, 22.8\%$), while L1 knowledge ($F = 4, 1.4\%$) and L2 knowledge ($F = 3, 1.1\%$) were the least utilized. Within the intermediate-proficiency group, 247 strategies were used. The most frequently employed strategies were sentence context ($F = 107, 43.3\%$) and literal translation ($F = 72, 29.1\%$), while the least utilized strategy was L1 knowledge ($F = 3, 1.2\%$). In the advanced-proficiency group, 279 strategies were observed. Sentence context ($F = 87, 31.4\%$) and literal translation ($F = 77, 27.8\%$) remained the dominant strategies, while L1 knowledge ($F = 17, 6.1\%$) and psychological imagery ($F = 13, 4.7\%$) were the least employed.

Table 6
The usage frequency of strategies by groups

	T	Sentence Context		Literal Translation		L1 Knowledge		L2 Knowledge		Random Guess		Psychology Imagery	
		F	%	F	%	F	%	F	%	F	%	F	%
Low	276	142	51.4%	63	22.8%	4	1.4%	3	1.1%	43	15.6%	21	7.6%
Intermediate	247	107	43.3%	72	29.1%	3	1.2%	25	10.1%	27	10.9%	13	5.3%
Advanced	277	87	31.4%	77	27.8%	17	6.1%	60	21.7%	23	8.3%	13	4.7%

A Kruskal-Wallis H test was conducted to compare the overall use of strategies among the three proficiency levels. Table 7 shows there are no statistical differences in the utilization of strategies among three proficiency groups, indicated by $\chi^2(2) = 0.059, p = .971 > .05$, signifying that regardless of their proficiency level, all learners tend to employ a wide range of strategies to a similar extent when comprehending metaphors.

Table 7
Kruskal-Wallis H test results for overall strategy use among proficiency groups

	Group	N	Mean Rank	Chi-square	df	Asymp. Sig.
Strategy Use	Low	250	363.60	0.059	2	.971
	Median	225	361.51			
	High	250	363.75			

Also, a Kruskal-Wallis H test was conducted to compare the frequency usage of six strategies among the three groups. The results, as presented in Table 8, revealed no significant differences among the proficiency groups for various strategies. For sentence context, $\chi^2(2) = 5.380$, $p = .068 > .05$, indicating that the frequency of its usage is consistent across the proficiency groups and not significantly influenced by the learners' language proficiency. The same pattern was observed for literal translation ($\chi^2(2) = .478$, $p = .787 > .05$); L1 knowledge ($\chi^2(2) = 4.311$, $p = .116 > .05$), L2 knowledge ($\chi^2(2) = 5.146$, $p = .076 > .05$), random guess ($\chi^2(2) = .992$, $p = .609 > .05$), and psychology imagery ($\chi^2(2) = 1.654$, $p = .437 > .05$). This uniformity in strategy utilization suggests that the usage frequency of these strategies remains consistent across the three proficiency groups.

Table 8
Kruskal-Wallis H test results for six strategies among proficiency groups

	Group	N	Mean Rank	Chi-square	df	Asymp. Sig.
SC	Low	10	18.60	5.380	2	.068
	Median	9	16.44			
	High	10	10.10			
LT	Low	10	14.10	.478	2	.787
	Median	9	16.61			
	High	10	14.45			
FK	Low	10	12.60	4.311	2	.116
	Median	9	13.78			
	High	10	18.50			
SK	Low	10	10.50	5.146	2	.076
	Median	9	17.11			
	High	10	17.60			
RG	Low	10	14.95	.992	2	.609
	Median	9	17.00			
	High	10	13.25			
PI	Low	10	17.15	1.654	2	.437
	Median	9	15.44			
	High	10	12.45			

Overall, the use of all six strategies showed no significant differences among high-, intermediate-, and low-proficiency groups, suggesting that factors beyond language proficiency may influence metaphor comprehension. Sentence context and literal translation emerged as the most frequently used strategies across all groups while psychological imagery and L1 knowledge were the least utilized. Although some minor variations were observed – specifically, the low-proficiency group showed limited use of L1 and L2 knowledge strategies, and the intermediate-proficiency group displayed a similar trend with L1 knowledge – these differences did not reach statistical significance. Notably, advanced-proficiency participants exhibited a relatively higher usage of the L1 knowledge strategy but used psychological imagery less frequently. Moreover, strategy co-occurrence analysis highlighted the prevalence of combinations involving sentence context and literal translation, underscoring their central role in metaphor comprehension strategies across all proficiency levels.

Q3: Which strategies employed by Chinese L2 learners significantly contribute to the comprehension of L2 metaphors?

A multiple linear regression analysis was run to predict whether proficiency levels and strategies contributed to learners' L2 metaphor comprehension. As seen in Table 9, the results showed a significant model, $F(7, 717) = 18.85, p < .001, R^2 = .16$. The significant predictors contributing to the comprehension of L2 metaphors included Chinese proficiency ($t = 7.23, p < .001$), sentence context ($t = 2.15, p (.032) < .05$), L2 knowledge ($t = 2.520, p (.012) < .05$), and random guess ($t = 2.764, p (.006) < .01$), but literal translation ($t = .813, p (.416) > .05$), L1 knowledge ($t = .924, p (.356) > .05$), and psychological imagery ($t = 1.369, p (.171) > .05$) were not. As such, learners with high language proficiency who made effective use of sentence context, L2 knowledge, and random guess tended to have a better grasp of metaphors while strategies of literal translation, L1 knowledge, and psychological imagery did not significantly contribute to participants' ability to comprehend metaphors.

Table 9
Multiple linear regression results for factors affecting metaphor comprehension

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.394 ^a	.155	.147	.450

a. Predictors: (Constant), group, SC, LT, FK, SK, RG, PI

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.672	7	3.810	18.846	< .001 ^b
	Residual	144.962	717	.202		
	Total	171.633	724			

a. Dependent Variable: Comprehension

b. Predictors: (Constant), proficiency, SC, LT, FK, SK, RG, PI

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.224	.078		2.884	.004	.071	.376
	Proficiency	.155	.021	.264	7.226	<.001	.113	.197
	SC	.134	.062	.137	2.148	.032	.011	.256
	LT	.049	.060	.046	.813	.416	-.069	.167
	FK	.100	.108	.037	.924	.356	-.112	.312
	SK	.201	.080	.135	2.520	.012	.044	.358
	RG	-.221	.080	-.152	-2.764	.006	-.379	-.064
	PI	.105	.076	.053	1.369	.171	-.045	.255

a. Dependent Variable: comprehension

DISCUSSIONS

The current study identified six metaphor comprehension strategies used by L2 Chinese learners: sentence context, literal translation, L1 knowledge, L2 knowledge, random guess, and psychological imagery. The frequency of strategy use did not significantly vary across proficiency groups, suggesting these strategies are commonly employed regardless of proficiency level. This finding aligns with Wu et al. (2021), who observed a similar diversification in strategy use among L2 Chinese learners.

Of the six strategies, sentence context and literal translation were the most frequently used, consistent with previous studies (Ranong, 2014; Xu & Zhao, 2014). Sentence context, as the most common strategy, aids comprehension by leveraging linguistic forms embedded within phrases, sentences, and texts. However, despite increased proficiency, L2 learners often lack native-like sociocultural knowledge, leading to reliance on literal interpretation. Semantic cues related to the metaphor's ground assist learners in differentiating between figurative and literal meanings, promoting a holistic comprehension approach (Cieślicka, 2015; Columbus et al., 2015; Gildea & Glucksberg, 1983). These findings underscore the crucial role of context in managing conflicts between literal and metaphorical interpretations, facilitating a broader semantic understanding.

Literal translation, another prominent strategy, highlights how learners often activate literal meanings first, as these meanings are more accessible in their mental lexicon. This is consistent with the Literal Salience Model, which suggests that literal meanings of idiom components are often more salient due to their established presence in learners' lexicons (Cieślicka, 2015; Giora, 1997). Charteris-Black (2002) further notes that L2 learners tend to interpret unfamiliar expressions literally, rather than drawing on pragmatic understanding.

Interestingly, L1 knowledge was the least used strategy among low- and intermediate-proficiency learners but was more common among advanced learners, supporting Language Transfer Theory (Selinker, 1969). As learners progress, they draw on L2-specific resources, reducing L1 interference in metaphor comprehension. Advanced learners more confidently integrate L1 and L2 knowledge, often recognizing similar phrases across languages and utilizing L1 cultural cues for improved comprehension (Singhal, 2001; Yule, 1996). Familiarity with L2 culture fosters more accurate interpretations, while reliance on L1 culture may lead to misinterpretations (Erten & Razi, 2009).

The study found no significant reduction in sentence context and random guess as proficiency increased, though proficiency seemed to correlate with reduced reliance on compensatory strategies like random guess. Low-proficiency learners often resorted to random guesses and psychological imagery, which helped fill gaps in linguistic and cultural knowledge. Advanced learners, however, utilized L2 knowledge to enhance accuracy, suggesting a developmental trend where proficiency reduces reliance on guessing strategies (Xu & Zhao, 2014).

While most findings align with prior research, a notable exception is the absence of syntactic analysis as a strategy, which contrasts with Xu and Zhao (2014) and Wu et al. (2021). This may

be because syntactic analysis is context-specific, relevant only in limited situations, or because participants lacked the grammatical expertise needed for this approach. Wu et al. (2021) found that learners use syntactic analysis only when confident in its application, potentially explaining its omission in this study.

Chinese proficiency significantly enhanced metaphor comprehension accuracy, which aligns with prior findings (Ranong, 2014; Yao, 2019; Zhang, 2017). Higher proficiency learners demonstrated a better grasp of cultural nuances, contributing to greater metaphor comprehension precision (Xu & Zhao, 2014). However, this result contrasts with Wu (2014), who found no significant relationship between proficiency and L2 idiom processing. These discrepancies may stem from differences in study design, such as varying proficiency grouping methods, as prior studies utilized a range of measures, including placement tests, grade levels, and vocabulary tests (Ranong, 2014; Xu & Zhao, 2014; Yao, 2019; Zhang, 2017).

Moreover, sentence context significantly influenced metaphor comprehension, consistent with previous findings that emphasize context as a compensatory tool for cultural and linguistic gaps in L2 learners (Wu et al., 2021; Xu & Zhao, 2014). Similarly, L2 knowledge was a critical factor in comprehension accuracy, as familiarity with Chinese language and culture allowed learners to navigate metaphors effectively, highlighting the embedded cultural nuances of Chinese metaphors (Lakoff & Johnson, 1980).

Contrary to expectations, literal meaning did not significantly contribute to accurate metaphor interpretation. Consistent with Xu and Zhao (2014), the participants' limited cultural or linguistic knowledge may have hindered effective metaphor comprehension, despite understanding the inadequacy of literal interpretations. Additionally, neither literal translation nor L1 knowledge significantly affected accuracy, diverging from Wu et al. (2021), where both were key contributors. This discrepancy may result from differences in participant's language proficiency; Wu et al.'s participants had advanced proficiency, enabling a nuanced understanding of literal and metaphorical meanings.

Unexpectedly, random guess emerged as a significant predictor of comprehension, suggesting that random guesses may sometimes be informed by subtle linguistic or contextual cues (Wu et al., 2021). In this study, participants occasionally arrived correct interpretations without articulating the rationale, which may explain why random guess contributed to comprehension. Some participants noted that they could sense a metaphor's meaning even if they could not explain it fully.

Finally, the study found that participants engaged in both single and co-occurring strategy use, echoing previous research (Wu et al., 2019; Xu & Zhao, 2014). Analysis of strategy co-occurrence revealed that sentence context, literal translation, and psychological imagery often appeared in combination, with sentence context and literal interpretation typically initiating the sequence. Consistent with Wu et al. (2021), psychological imagery was used later in strategy sequences, reflecting a dynamic interaction between cues in the metaphor comprehension process. This sequential strategy use aligns with the Competition Model (Li & MacWhinney, 2013), where learners prioritize salient cues, such as sentence context, to activate complementary



strategies for accurate interpretation. This model suggests that L2 learners adaptively transfer cue strengths from L1 to establish an independent L2 comprehension system (Green, 1993; Liu, 2009), and their use of literal interpretation, psychological imagery, and L2 knowledge highlights the adaptable nature of cue competition in effective metaphor comprehension.

CONCLUSIONS

This study examined metaphor comprehension strategies among L2 Chinese learners at various proficiency levels, exploring how proficiency impacts strategy use and comprehension accuracy. Findings indicate that learners across proficiency levels use a diverse range of strategies, with sentence context and literal translation emerging as the most dominant strategies. L1 knowledge is the least utilized, especially among low- and intermediate-level learners. Additionally, metaphor comprehension positively correlates with L2 proficiency, with higher proficiency leading to greater accuracy. Sentence context, L2 knowledge, and random guess contribute significantly to comprehension precision, while other strategies show limited effects. The study also identifies common co-occurring strategies, with sentence context, literal translation, and psychological imagery functioning as initial or sequentially triggered strategies. These findings support the Competition Model (Li & MacWhinney, 2013), as learners prioritize prominent cues (e.g., sentence context) to activate other strategies, promoting accurate interpretation. The observed trend that proficiency benefits metaphor comprehension but diminishes in impact at advanced levels adds valuable insight into L2 metaphor processing and has practical implications for language educators.

IMPLICATIONS

The study suggests several implications for L2 Chinese language pedagogy. Emphasizing sentence context and literal translation as foundational strategies across proficiency levels could enhance comprehension. An integrated approach to strategy training—encouraging the use of contextual, linguistic, and cultural cues—may benefit all learners. Given the similar strategy usage patterns across proficiency levels, instructional practices should aim to cultivate flexibility in strategy use, enhancing learners' ability to select and apply the most suitable strategies based on context. This adaptive approach could help learners develop versatile metaphor comprehension skills, ultimately fostering a more nuanced understanding of Chinese language metaphors. Additionally, the link between higher Chinese proficiency and improved comprehension accuracy underscores the importance of combining metaphor training with overall language proficiency development, as more advanced language skills facilitate more precise metaphor interpretation. Language educators are encouraged to include culturally rich materials that bridge the gap between literal and figurative meanings, promoting learners' ability to recognize and interpret culturally embedded metaphors accurately.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

While this study provides valuable insights into metaphor comprehension strategies among L2 Chinese learners, certain limitations should be considered to inform future research directions. First, the study's relatively small sample size may limit the generalizability of the findings. Expanding the sample in future studies could help validate these results across a broader population. Additionally, participants came from diverse L1 backgrounds, which, while reflective of real-world language diversity, may introduce subtle variations in metaphor comprehension. Future research might explore these differences further by incorporating more homogenous L1 backgrounds or by examining specific influences of varied L1 cultural frameworks. The requirement for participants to respond in Chinese, though designed to assess language-specific comprehension, may have posed challenges for lower-proficiency learners in expressing their full understanding. Allowing responses in both the target language and learners' L1 could yield a more nuanced view of their metaphor interpretation processes across proficiency levels.

Furthermore, the study includes "synonymous substitution" within the L2 knowledge strategy category. Future research could further investigate this strategy's role in metaphor comprehension to ensure its relevance and clarify its impact. Finally, employing qualitative methods such as think-aloud protocols or follow-up interviews could offer additional insights into the cognitive processes and rationale behind participants' strategy choices. Such approaches would provide a richer understanding of metaphor processing dynamics, helping to inform both theoretical models and instructional practices for L2 metaphor comprehension.

Declaration of generative AI use

During the preparation of this manuscript, the authors used ChatGPT 4.0 to assist with editing in the writing process. After using this tool, the authors thoroughly reviewed and further edited the content as necessary and take full responsibility for the final version of the publication.

THE AUTHORS

Liao Liao Ding is a PhD candidate studying applied linguistics at the Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand. With over 10 years of experience teaching Chinese to speakers of other languages, she specializes in second/foreign language teaching. Her passion lies in L2 metaphor processing and its implications for language acquisition.

cqdl61@gmail.com

Angkana Tongpoon-Patanasorn, PhD, is an associate professor at the Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand. Her research interests include business English, corpus linguistics, second/foreign language teaching, and second language acquisition.

angton@kku.ac.th

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Appendix A Background of participants

No.	Gender	Age	L1	Major	Chinese Proficiency (HSK)	Years in China
1	Female	20	Thai	Chinese	Level 4	2
2	Female	20	Thai	Chinese	Level 6	2
3	Female	20	Thai	Chinese	Level 4	2
4	Female	21	Thai	Chinese	Level 6	2
5	Female	20	Thai	Chinese	Level 4	1
6	Female	20	Thai	Chinese	Level 4	1
7	Female	23	Thai	Chinese	Level 5	2
8	Female	20	Thai	Chinese	Level 4	2
9	Female	20	Thai	Chinese	Level 4	2
10	Male	25	Indonesian	Chinese	Level 5	2
11	Male	23	Kinyarwanda	Chinese	Level 4	1
12	Female	23	Vietnamese	Chinese	Level 6	1
13	Female	24	Mongolian	Chinese	Level 6	2
14	Male	25	Kinyarwanda	Chinese	Level 5	1
15	Female	21	Kinyarwanda	Chinese	Level 5	1
16	Female	20	Thai	Chinese	Level 4	1
17	Female	21	Thai	Chinese	Level 5	2
18	Female	21	Thai	Chinese	Level 6	2
19	Male	22	Vietnamese	Chinese	Level 6	2
20	Male	20	Thai	Chinese	Level 6	2
21	Male	20	Thai	Chinese	Level 4	2
22	Female	22	Thai	Chinese	Level 6	2
23	Female	22	Thai	Chinese	Level 6	2
24	Female	20	Thai	Chinese	Level 6	2
25	Female	21	Thai	Chinese	Level 5	2
26	Female	21	Thai	Chinese	Level 5	2
27	Female	24	Lao	Chinese	Level 5	2
28	Female	20	Vietnamese	Chinese	Level 4	2
29	Male	24	Kinyarwanda	Chinese	Level 5	1

Appendix B

Chinese metaphorical test items for assessing comprehension

NO.	Metaphor Expression	Metaphorical Meaning	Context Description
1	远 / yuǎn, spatially far away /	temporally distant	冬天还很远, 蚂蚁已经开始寻找食物了。(Winter is still <u>a long way off</u> , but the ants have already started searching for food.)
2	没底 / méi dǐ, bottomless /	feeling insecure or uncertain	每次考试前, 不提前复习的话, 我心里就没底。(If I don't review before exams, I <u>feel completely insecure</u> .)
3	吸收 / xī shōu, absorb /	a thorough and internalized learning process	读书可以了解不知道的事物, 读书是愉快地吸收知识的过程。(Reading allows you to learn about unknown things; it's a joyful process of <u>internalizing</u> knowledge.)
4	往上爬 / wǎng shàng pá, climb up /	to seek advancement in status or power	他的名声不好, 只想着往上爬, 当大官。(He has a bad reputation, always striving for <u>higher status</u> and eager to <u>secure a high position</u> .)
5	炒鱿鱼 / chǎo yóuyú, stir-fried squid /	being fired	我被炒鱿鱼了, 又要重新找工作。(I <u>got fired</u> and now have to find a new job.)
6	不健康 / bú jiànkāng, not in good health /	harmful, distorted mindset or idea	总是抱怨生活、埋怨别人, 这是一种不健康的思想! (Always complaining about life and blaming others is a <u>toxic</u> way of thinking!)
7	上心 / shàng xīn, take to heart /	to care deeply, to be attentive	她对自己的学业非常上心, 每天都会认真学习并努力取得好成绩。(She is <u>very attentive to</u> her studies, studying diligently every day to achieve good grades.)
8	走出 / zǒu chū, walk out /	overcome or move past difficulties	在政府的帮助下, 很多企业走出了最困难的阶段。(With government assistance, many companies have <u>moved past</u> their most difficult phase.)
9	没到那儿 / méi dào nà'ér, haven't arrived at a place /	not yet achieved a goal	他最后肯定会成功, 只是现在还没到那儿。(He will definitely succeed in the end; he just <u>hasn't achieved that goal yet</u> .)
10	基石 / jī shí, cornerstone /	essential foundation	这项基础研究很关键, 是整个研究计划的基石。(This fundamental research is crucial; it's the <u>foundation of the entire project</u> .)
11	暗淡 / àn dàn, dim light (not bright) /	gloomy or bleak future	他公司的产品卖不出去, 未来很是暗淡。(His company's products aren't selling, and the future looks <u>bleak and shadowed</u> .)
12	抢时间 / qiǎng shí jiān, snatch time /	race against time	工人们都在抢时间, 争分夺秒, 争取早点完成任务。(The workers are <u>racing against time</u> , striving to finish the task as early as possible.)
13	中心 / zhōng xīn, center /	central or key figure	董事长是我们公司的中心人物。(The chairman is the <u>central figure</u> of our company.)
14	道路 / dào lù, physical road /	a process or progression over time, journey in life	许多条道路都能通向成功。(Many <u>journeys</u> can lead to success.)

NO.	Metaphor Expression	Metaphorical Meaning	Context Description
15	头儿 / tóu'ér, head (body part) /	leader or person in charge	她是这儿的头儿，大家都听她的安排。(She is the <u>leader</u> here, and everyone follows her direction.)
16	不买账 / bù mǎi zhàng, not pay the bill/	not convinced, not accept	这部电影获奖了，但观众根本不买账。(The movie won an award, but the audience <u>isn't convinced by it at all.</u>)
17	后台 / hòu tái, backstage of a theater /	powerful backing or connections	他觉得每一个富人背后都有一个做官的后台。(He believes that every wealthy person has <u>powerful connections</u> in the government.)
18	披着羊皮的狼 / pī zhe yáng pí de láng, wolf covered in sheep's skin /	a deceitful person	不要相信他，他是一匹披着羊皮的狼。(Don't trust him; he <u>is a deceitful person.</u>)
19	白日梦 / bái rì mèng, white daydream /	unrealistic fantasy	他看着窗外，做着天上掉钱的白日梦。(He gazed out the window, <u>fantasizing</u> about money falling from the sky.)
20	铺路 / pū lù, pave the road /	lay the groundwork for someone's future	很多家长爱给孩子铺路，为他们选择学校，安排工作，恨不得一切都包了。(Many parents like to <u>lay the groundwork</u> for their children, choosing schools and arranging jobs, wanting to take care of everything.)
21	耳目 / ěr mù, eyes and ears /	informants or spies	这里犯罪集团的耳目非常多，你在这里调查要特别小心。(There are many <u>informants</u> for the criminal gang here, so be especially careful with your investigation.)
22	泼冷水 / pō lěng shuǐ, pour cold water /	discourage someone	在朋友遇到苦难时需要鼓励他，千万不要泼冷水。(When a friend is struggling, you should encourage them, not <u>discourage</u> them.)
23	留后路 / liú hòu lù, keep a road behind /	leave an option, a way out	说话做事不要太过分！要给自己留后路。(Don't go too far in words or actions! Always <u>leave yourself a way out.</u>)
24	站在...这一边 / zhàn zài ... zhè yì biān, stand on one side physically /	take a side in an argument or conflict	我和他对这个问题有不同的看法，你站在谁这一边呢？(He and I have different opinions on this issue; <u>which position do you support?</u>)
25	夜长梦多 / yè cháng mèng duō, long nights and many dreams /	the longer things drag on, the more problems arise	他们两个以最快的速度把事情办了，免得夜长梦多。(They handled the matter as quickly as possible to <u>avoid complications arising.</u>)