Reading Comprehension Problems in Chinese among Children in a Malaysian International School

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Abstract
While extensive research has explored students' problems in reading comprehension, studies specifically examining the problems faced by child learners of Chinese as a Foreign Language (CFL) in reading comprehension have been relatively scarce. This research aimed to examine reading comprehension problems in CFL children at an international school in Malaysia. Forty-four child learners of CFL were evaluated on their knowledge in character, morpheme, vocabulary, grammar, and passage reading comprehension abilities. Through descriptive and error analysis, this study revealed several key issues: participants failed to identify the target character even when contextual clues were provided, overgeneralized character knowledge, were unfamiliar with extended morpheme meanings, incorrectly discriminated between morphemes based on their position in vocabulary, mistreated disyllables with similar structures as synonyms, struggled to order sentences in serial verb constructions (SVC), and made more errors on implicit than explicit questions in the passage reading. The conclusions of the study are presented along with implications for pedagogy and suggestions for further research.
Keywords: Reading Comprehension Problem, Chinese As A Foreign Language, Descriptive Analysis, Error Analysis

Introduction
The primary purpose of reading is to comprehend and derive the meaning expressed by the text. Reading not only enables readers to gather essential information from diverse materials, but it also facilitates their cognitive processes, enhances their knowledge, and improves their command of language (Chandran & Shah, 2019). The importance of reading skills in literacy development and career advancement is well-documented (Merga & Roni, 2018). For instance, Kamarundzaman (2014) revealed that the Malaysian Ministry of Education identified 162,000 primary and secondary school students as illiterate, with 120,000 of these in primary schools. This highlights significant reading comprehension challenges among Malaysian children.

Earlier, Carr and Levy (1990) introduced the component skill approach to analyze the reading comprehension in which reading abilities are understood by a set of decomposable components. Alderson (1984) raised a question about whether difficulties in second language (L2) reading originate from language proficiency or from reading skills. Later, the study of Jeon and Yamashita (2014) demonstrated that among the component skills contributing to L2 reading comprehension, L2 components such as morpheme, vocabulary and grammar had the largest effect on L2 reading comprehension. Therefore, it answered the questions raised by Alderson (1984), highlighting that the problems and difficulties in L2 reading comprehension are more related to L2 linguistic skills. As previously noted, possessing a strong understanding of morphology, vocabulary, and grammar is essential for successful reading comprehension in L1 English and ESL contexts. These component skills also have a substantial impact on reading comprehension in L1/L2/FL Chinese settings (Tong & McBride, 2017; Wu 2017; Zhong et al., 2023). Furthermore, understanding Chinese characters is crucial for reading in Chinese. In this writing system, characters serve as the fundamental units, with radicals acting as their building blocks. Research by Leong et al (2011); Shum et al (2014) has shown the vital link between recognizing characters and comprehending reading material in Chinese. In summary, the component skills including Chinese character, morpheme, vocabulary and grammar can facilitate the analysis of Chinese reading comprehension ability.

While much research and analysis mainly focused on the problems or difficulties in reading comprehension faced by ESL learners in Malaysia and Indonesia Chua & Sulaiman (2021); Septia et al (2022), the situation among CFL learners in Malaysian international schools has received less attention. The study of Wong (2014) has touched on problems in Chinese passage reading among non-Chinese undergraduates in Malysia but has not analyzed reading comprehension from the perspective of component skills. This gap underlines the pressing need to identify and address the specific problems or challenges faced by Malaysian CFL children in reading comprehension. Consequently, the research object is to examine the problem in reading comprehension encountered by CFL child learners in a Malaysia international school.

The question in the study to be addressed is:
What are the problems faced by child CFL learners in reading comprehension?

Literature Review
Reading comprehension and component skills
The core purpose of reading is to decode visual information from text and understand the author's intended message. Research on reading has been shaped by two main theories: the holistic view Goodman (1969), which sees reading as a unified process inherent to human development, and the componential view, which breaks reading into distinct skills to better address individual differences and specific reading difficulties by understanding the interplay of various subskills. The advantages of the componential view of reading are highlighted by its ability to identify specific deficiencies and their interrelations. This is crucial for resolving reading difficulties and understanding the role of linguistic knowledge in reading acquisition. According to Carr and Levy (1990), the component skills approach identifies and compares cognitive skills crucial to reading, focusing on their roles in perception, comprehension, and memory of language, aiming to understand their functional and developmental interconnections. In addition, Koda (2007) describes reading as an information process involving specific, separable mental operations that include decoding, text-information

construction, and reader-model development. These operations utilize knowledge in orthography, phonology, morphology, vocabulary, and syntax to enable comprehension of text. Previous scholars have extensively researched components such as morphemes, vocabulary, and grammar in the context of reading comprehension for both English L1/L2 and Chinese L1/L2, with evidence indicating these component skills explaining the vast majority of variance in reading comprehension (Jeon & Yamashita, 2014; Zhong et al., 2023; Zhou, 2018).

In Chinese reading comprehension, character knowledge is crucial. The Chinese writing system uses characters as the basic units, with radicals forming the core of each character. Nguyen et al (2017) noted that over 80% of characters are semantic-phonetic compounds, comprising a semantic radical that indicates meaning and a phonetic radical suggesting pronunciation. Chinese-speaking children and CFL learners rely on both semantic and phonetic radicals to decode characters, with knowledge of semantic radicals being more important for recognizing and reading Chinese characters (Tong et al., 2017; Williams, 2013).

Concerning morpheme in Chinese, generally, each character corresponds to a single morpheme. Some characters can represent multiple morphemes. For example, 发 means 'to declare' in 发布 (pronunciation /fa1/) and refers to 'hair' in 头发 (pronounced /fa/). There are around 1200 syllables and 7000 morphemes in Mandarin, averaging about five morphemes per syllable. This language shows an abundance of monosyllabic homophones which are words having different meanings but sharing the same pronunciation. For example, 男 (male) and南 (south) share the same pronunciation /nan2/ but both characters differ in written form and semantic meaning. Learners would confuse the meanings when they listen to the pronunciation without referring to characters. Moreover, morphological knowledge makes a unique contribution to L2 reading comprehension in Chinese (Lü, 2019; Zhang & Jiang, 2015).

As for vocabulary knowledge, previous research suggested that vocabulary knowledge includes both depth and breadth in the aspect of dimension. Depth refers to learners' understanding of the form, meaning, and usage of L2 vocabulary, while breadth involves knowing various word forms and their root meanings, also called form-meaning associations (Stæhr, 2009; Teng, 2021). Several studies have proposed that the depth of vocabulary knowledge has a more significant influence on reading comprehension than the breadth of vocabulary, because a deeper understanding of vocabulary allows for better inference and contextual understanding while reading (Kang et al., 2012). Many studies have recognized the impact of vocabulary knowledge on Chinese reading comprehension across L1, L2, and FL contexts (Chen et al., 2019; Wu, 2016).

Regarding grammar knowledge, Chinese grammar places a significant emphasis on word order to convey meaning accurately. Chao (1968) emphasized the importance of sentence word order to define grammatical relationships in Chinese. Further studies by Gong and Peng (2005); Hu (1987) have concluded that the structure and meaning of the language are profoundly influenced by word order. Unlike English, where grammatical roles are often featured by inflections or declensions, Chinese relies on the positioning of words within a sentence. Furthermore, the unique contributive role of grammar knowledge to Chinese reading comprehension was found in many studies (Tong et al., 2021; Zhou, 2021).

Analysis of reading comprehension problems
Previous studies on reading comprehension problems or difficulties have been conducted among youth and adult EFL learners in Indonesia and Malaysia. For example, by using explanatory multi-method strategy, Nurjanah (2018) examined eight Indonesian EFL university students' difficulties in doing reading comprehension and the findings showed that students encountered issues with vocabulary knowledge or mastery, which are linked to a lack of reading habits and uninteresting reading comprehension courses offered. Saraswati et al (2021) investigated the reading comprehension difficulties of 129 eighth-grade students in Indonesia using a descriptive quantitative method. The results indicated that identifying the main idea was the most challenging aspect for the students, with a difficulty percentage of 72%. This was followed by locating references at 70%. Difficulties in understanding vocabulary and finding specific information were reported at 68% and 67%, respectively, showing only a one percent difference. Meanwhile, making inferences was identified as the least challenging, with a difficulty percentage of 63%. In addition, Septia et al (2022) investigated students' difficulties in learning reading comprehension at a public high school in Indonesia. The results showed that the challenges students faced included answering questions about the main idea (53.67%), vocabulary (47.84%), and making inferences (45.34%).

In Malaysian settings, Al-Jarrah and Ismail (2018) conducted a study to explore the challenges of reading comprehension faced by EFL students in higher education institutions in Malaysia. The primary challenge identified among 100 Arab EFL learners in this study was their inability to identify the types of text or text structures they are reading. Additional issues encountered by the students included insufficient prior knowledge, difficulties with vocabulary, and a lack of focus on the text. Besides, Chandran and Shah (2019) investigated 80 upper secondary students' difficulties in ESL reading comprehension in Malaysia. Based on the findings, the primary challenges they faced in ESL reading comprehension included: unfamiliarity with the appropriate process for understanding text content, difficulties in identifying the main idea, and perceiving reading comprehension as boring or uninteresting. Consequently, they struggled to read effectively and connected new information to their existing knowledge. Recently, the study of Chua and Sulaiman (2021) aimed to identify the reading comprehension issues faced by Malaysian Year 4 ESL pupils when engaging with narrative texts. The most significant issue in reading comprehension among Year 4 ESL pupils was a lack of motivation. Students showed little interest in reading English texts and found the topics unengaging. The second and third issues were related to the pupils' background knowledge. The respondents considered the reading process to be the least problematic. One highly relevant study of Wong (2014) explored the problems of reading comprehension among 30 CFL undergraduates in a Malaysian university. The findings revealed that the learners preferred romanizing Chinese characters by using Malay alphabets or translations during their passage reading process. In summary, most prior research has concentrated on EFL reading comprehension while studies on CFL reading comprehension have been limited. Moreover, previous research has primarily focused on difficulties and problems related to reading. Very little is currently known about the issues in reading from the perspective of language component skills, as reading problems in L2 settings are often more akin to language issues.

Error Analysis
Error analysis is an approach in linguistics that scrutinizes the errors made by learners in a target language. It entails contrasting these errors with the standard forms of the language.

Error Analysis highlights the importance of these errors for understanding and improving second language acquisition (Khansir, 2012). Researchers have identified several causes for errors in language learning including language transfer, simplification, fossilization, underuse, insufficient knowledge rules and interference (James, 1998; Jobeen et al., 2015). Corder (1974) outlines a process to help researchers identify, classify, and address learners' errors effectively. This process comprises selection (choosing the sample of learner language to be analyzed), identification (comparing the learner's output with the correct version to pinpoint deviations), classification (grouping errors based on their nature), explanation (exploring the underlying causes of the errors), and evaluation (assessing errors to determine their significance and influence). Therefore, this approach was applied to analyze CFL learners' problems in reading comprehension.

Methodology
Participants
The study initially involved 60 students from grades 5 to 6 in an international primary school in Malaysia. After a thorough data cleaning process, 16 participants were excluded due to incomplete responses. The final analysis used data from 44 students, consisting of mixed boys (N=16) and girls (N=28). Their age ranged from 10 to 12 (M=10.80, SD=.77). Their mother tongue varied from English, Japanese, Korean, Tamil and Malay and they had studied Chinese as a foreign language for at least 5 years. Their school performance in Chinese indicated they had achieved a proficiency level between intermediate and upper intermediate. All the participants were normal children without reading-related issues such as dyslexia.

Materials and Instruments
This study employed five tests to evaluate participants' knowledge in Chinese characters, morphology, vocabulary, and grammar, as well as passage-level reading comprehension.
Test of Chinese character
Previous studies have shown that semantic radicals are more contributive than phonetic radicals to recognize Chinese characters (Ho et al., 2003; Mo, 2013). Therefore, it is essential for children to focus on learning semantic radicals, as this helps them infer the meanings of new or unfamiliar characters. The Chinese character knowledge test which was adopted from Zhong et al. (2023) includes a measure of learners' ability to identify characters correctly by presenting sentences with intentionally missing characters as test items. For example, item 4. 认识到自己的＿＿＿误，就要坚决改正 (Recognizing one's mistakes, one must be determined to correct them.) Four options were provided: A. 措 (measure) B.稽 (a place name) C.错 (wrong) D.醋 (vinegar). The four characters all contain the phonetic component 昔, yet they feature distinct semantic radicals. Participants are required to identify the correct character by examining these different semantic radicals. Each correct answer in the test was worth one point, with a maximum score of 15.

Test of morphological knowledge
This section, adapted from Zhang et al (2016), assesses participants' ability to understand identical morphemes that convey different meanings in various compound words. For example, three Chinese words were offered with each sharing a common morpheme: A.长跑 (long-distance running) B.长途 (long-distance) C.特长 (specialty), and participants have to

choose the one containing different morpheme meaning. Each correct response in the test earned one point, with a maximum score of 15.

Test of vocabulary knowledge
Synonym knowledge was used to assess participants' partial vocabulary knowledge in this study. It was adapted from the design of (Zhou, 2018). As illustrated in one item: the target word was 运动(exercise), and four choices were provided: A.起床 (get up) B. 锻炼 (exercise) C.运行 (in motion) D.好动 (active). Participants have to comprehend both the meaning of the target word and the meanings of the alternative options for correct answering. Each correct answer in the test was awarded one point, with the highest possible score being 15.

Test of grammar knowledge
Word order, following the design of Yeung et al (2013), measures participants' comprehension of the essential rules that dictate sentence construction. Participants were given one sentence split into several parts and scrambled. The sentence splitting was based on grammatical units of vocabulary and phrases in Chinese, such as content words and function words. They were tasked with rearranging the segments to form meaningful and grammatically correct sentences. For example: as for item 2. ①杯 (cup) ②热茶 (hot tea) ③会 (will) ④喝 (drink) ⑤舒服 (comfortable) ⑥很 (very), the correct sentence is ④喝①杯②热茶③会⑥很⑤舒服 (Drinking a cup of hot tea would be very comforting). Participants received one point for correctly ordering the entire sentence and half a point for correctly ordering half of the sentence. There are in total 15 items in this section.

Test of reading comprehension
This section utilized five passages to evaluate participants reading comprehension capabilities. The selected passages, tailored to their proficiency levels, covered a variety of genres: the first was a letter, followed by a narrative, an expository essay, an argumentative essay, and a diary entry. A total of 41 questions were designed to test a range of reading skills, including extracting basic information, integrating ideas, making inferences, and summarizing. The formats of the questions varied, including multiple-choice, short-answer, and true-or-false. Participants earned one point for each correct response, with a maximum possible score of 41.

Data collection and analysis
Before the testing commenced, participants and their guardians were informed about the objectives of the research and provided their consent to participate. The study was carried out in a controlled environment where the subject teachers handed out the tests to all participants, clearly explained what was expected of them in the study, and guided them throughout the session. This guidance ensured that participants fully understood the questions and responded to each item on the questionnaire comfortably and completely. The tasks were spread over six sessions, each lasting around 40 minutes. To avoid participants feeling tired, researchers mixed different types of tests in each session.

This study applied a mixed method. For the quantitative analysis, the frequency and percentage of participants' errors were calculated to identify common areas of difficulty and measure the overall performance across different tasks. This helped to quantify the extent of

errors in Chinese character knowledge, morpheme, vocabulary, grammar, and reading comprehension. These calculations provided a clear picture of the error distribution and highlighted specific areas where participants struggled the most. In the qualitative analysis, the underlying causes of the errors were explored through error analysis. This involved analyzing the types of errors made, categorizing them and understanding the reasons behind them.

Results

Descriptive statistics

Table 4.1 presents the performance of participants across various tests along with the reliability of each test. It demonstrates that all the tests exhibited very good internal consistency, indicating reliable measures. The maximum scores for the tests on Chinese character, morpheme, vocabulary synonym, word order, and reading comprehension were set at 15, 15, 15, 15, and 41, respectively. To simplify grading, the participants' total scores were scaled to a 100-point system. Score ranges were categorized as follows: 100-90 as excellent, 89-80 as good, 79-70 as average, 69-60 as below average, and any score below 60 as fail. The results reveal that participants scored highest in Chinese character knowledge (M=71.97, SD=19.64), followed by word order (M=70.98, SD=27.76). Scores for vocabulary synonym and reading comprehension were lower, with means of 64.70 (SD=22.62) and 64.41 (SD=23.73) respectively. The lowest scores were observed in morphological knowledge (M=61.82, SD=22.29). This suggests that the Chinese character and word order tests were comparatively easier for the participants, while reading comprehension along with morphological knowledge and vocabulary synonym posed more challenges. Overall, scores in Chinese character and word order were average, whereas those in vocabulary synonym, reading comprehension, and morphological knowledge fell below average.

Table 4.1

Descriptive Statistics of participants' achievements on each test

	Mean	Std. Deviation	Minimum	Maximum	Cronbach's Alpha
Chinese character knowledge	71.97	19.64	20.00	100.00	0.82
Morphological knowledge	61.82	22.29	26.67	100.00	0.77
Vocabulary synonym	64.70	22.62	13.33	100.00	0.80
Word order	70.98	27.76	.00	100.00	0.92
Reading comprehension	64.41	23.73	14.63	100.00	0.93

Chinese characters error

Table 4.2 reveals participants scores on Chinese character knowledge and performance category. There were 8 participants who failed, with 11 below average, 3 average, 15 good and 7 excellent. It seems that the majority of students had a satisfactory understanding of Chinese characters, with a few struggling.

Table 4.2
Scores on Chinese character knowledge

Scores	N	Percentage	Category
20	1	2.3%	
33	2	4.5%	
40	1	2.3%	Fail
47	3	6.8%	
53	1	2.3%	
60	7	15.9%	Below average
67	4	9.1%	
73	3	6.8%	Average
80	4	9.1%	
87	11	25.0%	Good
93	5	11.4%	
100	2	4.5%	Excellent

In Table 4.3, the participants' most frequent errors were the failure to identify the target character even the contextual character was given and overgeneralization of character knowledge.

Table 4.3
Typical Chinese character errors

Error Frequency	Error Types
42	Failure to identify the target character based on the context
26	Overgeneralization of character knowledge

As for their failure to identify the target character even the contextual character was given, examples were illustrated in items 11, 12 and 5.

In item 11. 这家__馆价钱便宜。(This restaurant has cheap prices.) A. 版 B. 板 C. 饭 D.贩 (A. edition B. plate C. meal D. vendor) The correct answer is C; however, 11 participants offered wrong answers. Five participants selected 贩 with four for 板 and two for 版. Even in the context another character 馆 was provided, they still could not associate with 饭.

In item 12. 今天阳光灿___，正是郊游的好日子。(The sun is shining today, and it's a good day for an outing.) A.烂 B.栏 C.兰 D.拦 (A. bright B. bar C. orchid D. stop) The correct answer is A; however, nine participants offered wrong answers. Four chose 栏 and 兰 separately with one for拦. Most of them failed to differentiate the meaning of 烂, 栏and 兰 even though the prior contextual character 灿 was given.

In item 5.他感冒后不停的咳___。(He kept coughing after he caught a cold.) A. 嗽 B. 漱 C.撒 D.瘶 (A. cough B. rinse C. take D. ailment) The correct answer is A; however, eight participants offered wrong answers. Three selected 漱 and 撒separately with two for 瘶. Even in the context in which the other character 咳 was provided, they still could not associate with 嗽.

Example illustrating their overgeneralization of character knowledge are shown in item 15. In Item 15. 每天早晨，我都跟爷爷一起去锻＿＿身体。(Every morning, I go for exercise with my grandfather.) A.练　　B. 炼　　C.链　　D.连　(A. train B. refine C. chain D. even) The correct answer is B, however, there are 26 participants with wrong answers offered. Nineteen participants chose 练 with 4 for连 and 3 for链. The participants are more likely to choose the 练 as the answer when it comes to body. However, the word 锻炼 (take exercise) is a fixed collocation and none of the characters should be replaced by others. In ancient Chinese the word锻炼 means to forge and smelt but lately it also means to build up the body. Identifying a character merely through the semantic radicals without considering its fixed collocation may lead to overgeneralization.

Morphological knowledge error
Table 4.4 indicates that 19 participants failed the morphological knowledge test, with 9 below average, 1 average, 2 good and 5 excellent. In this test, it appears that approximately half of the participants failed with only a few having more solid morphological knowledge.

Table 4.4
Scores on morphological knowledge

Scores	N	Percentage	Category
27	2	4.5%	
33	6	13.6%	
40	5	11.4%	Fail
47	2	4.5%	
53	4	9.1%	
60	4	9.1%	Below average
67	5	11.4%	
73	1	2.3%	Average
80	5	11.4%	
87	5	11.4%	Good
93	3	6.8%	
100	2	4.5%	Excellent

The participants most frequent errors were that they tended to differentiate the different morphemes according to their position in that vocabulary. When the morphemes in the vocabulary are in the same position, they considered that the characters share the same morpheme and semantic meaning. Most of the characters in Chinese have a few semantic meanings that are formed by basic meanings and extended meanings. Some respondents might understand the basic morpheme meanings of the Chinese characters but not their extended meanings.

Table 4.5.
Typical morpheme errors

Error Frequency	Error Types
130	Unfamiliar with the extending morpheme meaning
62	Discriminated the different morpheme according to its position in words

Regarding participants' unfamiliarity with the extending morpheme meaning, examples are shown in items 6. In item 6. A.白色　B.白吃　C.白米 (A. white　B. eat for free　C. white rice), the common morpheme 白 in 白色 and 白米 means white whereas in 白吃 signifies free of charge. The correct answer is B; however, 25 participants chose the wrong answers. Eighteen participants selected 白色 and seven for 白米. Many of them may consider that 吃 (to eat) and 米 (rice) are highly correlated, but they ignored the meaning of the morpheme in the exact word. This example reflected that some respondents just understood the basic meanings of the Chinese morphemes instead of the extending one.

In addition, the example in item 15 illustrates that participants tended to discriminate the same character with different morpheme meaning according to its position in vocabulary. In item 15. A.干燥　B.干净　C.饼干 (A. dry　B. clean　C. cookie), 干 as the common character and morpheme used to form the disyllables, in 干燥 and 饼干 it signifies dry whereas in 干净 it implies clean and neat. The correct answer is B; however, 37 participants chose the wrong answers. Among them 31 chose 饼干 and six for 干燥. They may see that the position of 干 in 干燥 and 干净 is the same, but different in 饼干; therefore, most of them tended to choose the different morpheme according to its position in that vocabulary.

Vocabulary synonym error
Table 4.6 shows that 16 participants failed, 9 achieving below average, 1 scoring average, 12 good and 6 excellent. The performance distribution reveals that a substantial number of participants were either struggling (failed or below average) or performing well (good or excellent), with very few in the average category.

Table 4.6
Scores on vocabulary knowledge

Scores	N	Percentage	Category
13	1	2.3%	
20	1	2.3%	
27	1	2.3%	
33	2	4.5%	Fail
40	5	11.4%	
47	1	2.3%	
53	5	11.4%	
60	4	9.1%	Below average
67	5	11.4%	
73	1	2.3%	Average
80	9	20.5%	
87	3	6.8%	Good
93	3	6.8%	
100	3	6.8%	Excellent

When participants saw that some words are similar in structure (i.e., sharing the first or last morpheme), they considered them synonyms, instead of comparing their meaning. The total error frequency on this is shown in Table 4.7.

Table 4.7.
Typical vocabulary errors

Error Frequency	Error Types
62	Consider words with similar structures as synonyms

Examples of participants treating words with similar structures as synonyms are shown in items 11, 10, 5 and 4.

For example, in item 11.舒服（ ）A.紧张　B.服气　C.愉快　D.舒张 (comfortable　A. nervous　B. convincing　C. pleasant　D. stretching), the correct answer is 愉快. However, 32 participants chose the wrong answers. Twenty participants selected 舒张, 8 for 紧张 and 4 for 服气. They may see 舒服 and 舒张 same in the first morpheme, thus considering them synonyms.

In item 10. 还是（ ）A.或者　B.还有　C.但是　D.却是 (either　A. or　B. and　C. but　D. however), the correct answer is 或者. However, 23 participants selected the wrong answer, with 12 for 还有, 7 for 却是 and 4 for 但是. Most of them regarded 还是 and 还有 as synonyms, probably due to their similar structure in the first morpheme.

In item 5. 打算（ ）A. 预测　B.打架　C.心算　D.计划 (intend　A. anticipate　B. fight　C. mental calculation　D. plan), the correct answer is 计划. However, 19 participants selected the wrong answer, with 8 for 打架, 7 for 预测 and 4 for 心算. Many of them selected 打算 and 打架 as synonyms due to their highly similar structures in the first morpheme.

Word order error
Table 4.8 depicts that 10 participants failed, with 6 below average, 5 average, 6 good and 17 excellent, which suggested that many participants have a strong command of word order despite one fourth did not meet the requirement.

Table 4.8
Scores on grammar knowledge

Scores	N	Percentage	Category
0	1	2.3%	
3	1	2.3%	
10	1	2.3%	
13	1	2.3%	
20	1	2.3%	
33	1	2.3%	Fail
40	1	2.3%	
47	1	2.3%	
50	1	2.3%	
57	1	2.3%	
60	1	2.3%	
63	3	6.8%	Below average
67	2	4.5%	
70	1	2.3%	Average
73	1	2.3%	
77	3	6.8%	
80	1	2.3%	
83	3	6.8%	Good
87	2	4.5%	
90	6	13.6%	
93	5	11.4%	
97	5	11.4%	Excellent
100	1	2.3%	

In word order test, participants made the most frequent errors on nouns (210) and verbs (197), followed by pronouns (99), auxiliaries (50), adverbs (46), and minimal errors on quantities (19), prepositions (19), adjectives (15) and conjunctions (10). In addition, most participants failed to order the sentences with serial verb constructs (SVC) as shown in items 14, 9 and 4.

In item 14: ①路上(location noun: on the way) ②的 (auxiliary: to link descriptive words, phrases and clauses to the noun they describe) ③忘了(verb: forgot) ④来机场(verbal phrase: come to the airport) ⑤我(pronoun: I) ⑥护照(noun: passport) ⑦带(verb: bring) ⑧才发现(verb: just realized) the correct sentence should be: ⑤我 ④来机场 ②的 ①路上 ⑧才发现 ③忘了 ⑦带 ⑥护照 (I realized I forgot bringing my passport on the way to the airport.) This sentence includes multiple verbs such as 来, 发现, 忘 and 带. Twenty-three participants did not order correctly. Thirteen participants made errors on the verb 才发现,

twelve on the auxiliary 的, eleven on the pronoun 我 and the verb 带 respectively, ten on the noun 护照, nine on the noun 路上, and eight on the verb 忘了 and the verbal phrase 来机场 respectively. They made more errors on the verb 才发现(the predicate) and pronoun 我 (the subject) in the sentence and fewer errors on the verbal phrase 来机场 and the noun 路上 which is a part of the temporal clause.

In item 9: ①正坐(verb: is sitting) ②他(pronoun: he) ③来(verb: come) ④公司(noun: company) ⑤地铁(noun: subway) ⑥我们(pronoun: our) the correct sentence should be:② 他 ①正坐 ⑤地铁 ③来 ⑥我们 ④公司 (He is coming to our office by subway.) Twenty-one participants did not order correctly. This sentence includes multiple verbs such as 坐 and 来. Nineteen participants made errors on the pronoun 我们, sixteen on the verb 正坐, fourteen on the noun 地铁, ten on the verb 来, and nine on the pronoun 他 and noun 公司 respectively. They made more errors on the pronoun 我们and the verb 正坐 (the predicate). In this sentence, they did not understand that the possessive pronoun 我们 should modify the noun 公司. However, they know the verb 来 to modify the noun 公司.

Passage reading comprehension error
Table 4.9 demonstrates that 15 participants failed the passage reading comprehension, with 6 below average, 12 average, 3 good and 8 excellent. It seems that almost one-third of the participants underperformed in reading comprehension, but the rest still had satisfactory reading performance.

Table 4.9
Scores on reading comprehension

Scores	N	Percentage	Category
15	1	2.3%	
20	1	2.3%	
24	1	2.3%	
27	1	2.3%	
28	2	4.5%	
30	1	2.3%	
32	1	2.3%	
41	1	2.3%	Fail
46	1	2.3%	
49	1	2.3%	
51	1	2.3%	
52	1	2.3%	
54	1	2.3%	
55	1	2.3%	
61	1	2.3%	
63	3	6.8%	Below average
65	1	2.3%	
66	1	2.3%	

70	2	4.5%	
71	2	4.5%	
72	1	2.3%	
73	3	6.8%	Average
74	1	2.3%	
78	2	4.5%	
79	1	2.3%	
82	1	2.3%	
85	1	2.3%	Good
87	1	2.3%	
91	2	4.5%	
94	2	4.5%	
96	1	2.3%	Excellent
98	1	2.3%	
100	2	4.5%	

There are 41 items in the passage reading comprehension. They aim to assess participants' ability to extract and judge basic information, make sentence-, paragraph- and passage-level inferences, and summarize at paragraph and passage level. Questions related to extracting and judging basic information can be seen as explicit questions and the rest can be identified as implicit questions. As shown in Figure 1, the error frequency for each reading test is as follows: explicit questions comprise items 2, 3, 6, 7, 14, 17, 18, 20, 21, 22, 23, 26, 28, 29, 30, 32, 34, 35, 37 and 41; implicit questions contain items 1, 4, 5, 8, 9, 10, 11, 12, 13, 15, 16, 19, 24, 25, 27, 31, 33, 36, 38, 39 and 40. The total error frequency for the explicit question is 299 and the implicit is 367. It indicates that participants' errors are inclined to implicit questions such as inferences from the sentence, paragraph, and passage level or summarization from the paragraph and passage level.
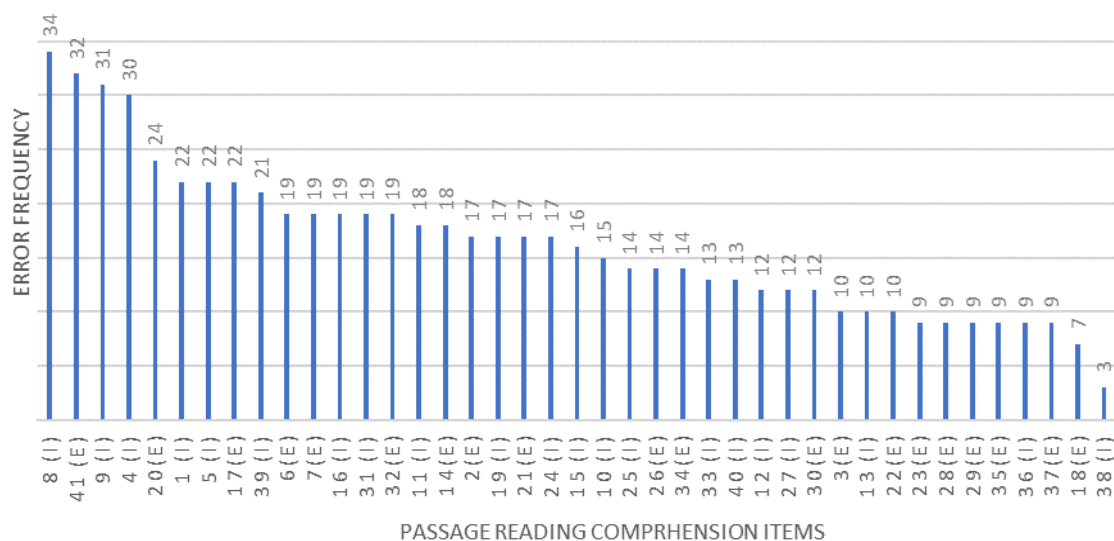
Note: I = Implicit questions, E= Explicit questions
Figure 1. *Error frequency of passage reading comprehension*

Discussions

The discussions of the key findings include the participants' errors from the aspects of Chinese character knowledge, morphological knowledge, vocabulary knowledge, grammar knowledge and reading comprehension.

First, regarding the problems in Chinese character knowledge, the participants' most frequent errors were the failure to identify the target character even when the contextual character was given and overgeneralization of character knowledge. According to Xiao (2002), context plays an important role not only in the study of phonological, lexical, and grammatical levels, but also in the study of Chinese character errors. Qiu (2014) mentioned that when learners write Chinese characters, they are influenced by contextual factors, and they add or make the radicals consistent with the contextual Chinese characters. Moreover, learners who use Chinese characters often prefer to change the characters that record disyllables to have the same radicals. This means that they want to have a clear formal connection between the two characters that record the disyllables. However, in this study, many participants failed to associate one character with the other contextual character that both share the same radical such as 饭馆, 灿烂, and 咳嗽. This is just the opposite of the phenomenon seen in Qiu's (2014) study. To some extent, they may not know how to make full use of the context and memorize the characters with the same radicals.

As for the problems in morphological knowledge, the participants most frequent errors were that they were unfamiliar with the extending morpheme meaning and tended to differentiate the different morpheme according to its position in that vocabulary. When the morphemes in the vocabulary are in the same position, they considered the vocabulary sharing the same morpheme meaning. Zhou (1986) pointed that to understand the meaning of a compound word, it is not enough to understand the word as a whole; it is necessary to break down the constituent parts of the word (usually two characters) to explain them separately, and then integrate them to explain the whole, in order to understand the meaning of the word thoroughly. The character here refers to the morpheme. The recognition of words should adopt both holistic and analytical strategies, from whole words to morphemes and then from morphemes back to whole words, in order to form a complete understanding of a word and to develop the ability to recognize and manipulate morphemes. The participants in the current study lacked the ability to split disyllables, analyze the morpheme used to form the disyllables, and identify morpheme meanings in the analysis. They simply classified morphemes based on their position in the disyllables rather than analyzing their various morpheme meanings. Studies by Packard (1999) on the processing strategies used by non-native learners of Chinese highlight that learners often adopt less sophisticated strategies, such as positional reliance, which can impede deeper linguistic comprehension.

Concerning synonym knowledge, in a word, when participants saw that some disyllables are similar in structure (i.e., sharing the first or last character), they simply considered them synonyms instead of comparing their meaning in the context of disyllables. For example, participants considered 舒张(stretching) as the synonym of 舒服 (comfortable) instead of 愉快 (pleasant). This is also due to the lack of ability to analyze the disyllables from a holistic perspective; on the contrary, participants tended to associate synonyms simply by the same characters shared. The study of Lam (2016) involved the exploration of learners associating characters and vocabulary based on their shared structural features, leading to synonym associations that are not always semantically accurate.

In grammar knowledge, the most frequent errors made by participants were nouns and verbs in the word order test. According to Hu (2013), nouns and verbs are the basis for constructing human language, representing the way of sentence formation. Wu (2023) likens nouns and verbs to the foundational pillars of the grammatical edifice. Therefore, high frequency errors in these categories can disrupt overall sentence formation and understanding. Moreover, most participants failed to order the sentences with serial verb constructs (SVC). According to Jiang and Anderson (2017), the SVC characteristics in Chinese include: 1) no explicit connective markers between verb phrases; 2) all verb phrases sharing a common grammatical subject; and 3) strict order of verb phrases. The alteration in the sequence of verb phrases might result in the grammatical incorrectness of a sentence or the whole sentence's meaning becoming uncertain. Ma (2019); Wu (2021) underlined the importance of SVC in Chinese and CFL learners generally feel that the usage and semantic features of SVC are complex and hard to understand. Besides, Chinese is considered to have a higher frequency of serial verbs compared with English and the verbs in Chinese do not have the grammatical features of inflection in English. Those participants were probably not accustomed to the SVC in Chinese.

Concerning the findings in passage level reading comprehension, participants made more errors on implicit questions such as inference of the sentence, paragraph or passage level or summarization from the paragraph and passage level than on explicit questions including basic information extraction and judgement. Implicit questions require higher-order thinking skills, demanding more from the reader's cognitive resources. Oakhill and Cain's study (2007) revealed that making inferences necessitates not only the activation of relevant prior knowledge but also the ability to integrate this with new information in a meaningful way. This process places a significant cognitive load on readers, more so than answering questions based on directly stated information. Moreover, Cain et al. (2004) stated that the ability to answer implicit questions develops later than that to answer explicit questions. Younger or less skilled readers often have not fully developed the necessary linguistic and cognitive skills, such as syntactic awareness and reasoning ability, which are crucial for processing implicit information. Therefore, in the study, participants probably had insufficient ability to integrate prior knowledge with new information during reading and their vital linguistic and cognitive skills have not fully developed.

Conclusions, Implications and Suggestions
To put it in a nutshell, the research objective was to examine the Chinese reading problems among Malaysian children in the aspects of Chinese character, morpheme, vocabulary, grammar and passage comprehension. Students' problems in Chinese character were related to the struggle with the identification of target characters despite the presence of contextual clues or overgeneralization of character knowledge. Chinese teachers are suggested to guide students to group characters with the same semantic radical such as 饭 and 馆 and grasp them in the vocabulary like 饭馆. Since participants had difficulty understanding extended morpheme meanings. Teachers should educate them different morpheme meaning during Chinese teaching. For example, for the character 白, students should be informed of its basic morpheme meaning as "white" as well as the extended meanings such as "free". Additionally, they frequently treated vocabulary with similar structures as synonyms such as 舒张 and 舒服. Therefore, teachers could clearly explain the distinct meanings and uses of each word in appropriate contexts. Moreover, participants also found it challenging to sequence sentences

in serial verb constructions (SVC). Teachers are supposed to explain the components and rules of SVCs, such as the order of actions and the relationship between verbs. Furthermore, the participants made more errors on implicit questions than on explicit ones at the passage reading level. Perfetti et al (2005) noted that reading text often involves implicit elements; to gain a deeper understanding, readers must make inferences that link various text elements or contribute to the coherence necessary for comprehension. Therefore, teachers should explain what inferences are and how they differ from explicit information and use inference question worksheets and exercises during reading class (Harvey & Goudvis, 2000).

This study contributes to our understanding of reading problems among Malaysian CFL children, covering aspects from Chinese character to morpheme, vocabulary, grammar and passage level comprehension. It fills a gap in the relevant literature on error analysis of reading comprehension in the CFL context. Compared with previous studies on the analysis of reading problems, the current study offers a new perspective through the component skill approach which highlights that issues in L2 reading are more related to language problems.

However, the research does have certain limitations that need to be acknowledged. Firstly, the participants were intermediate to upper-intermediate learners of Chinese, indicating that the results may not accurately represent the problems in reading comprehension among beginners or advanced learners. Future studies can explore the issues related to reading among learners from different language proficiency. Secondly, the instruments for assessing problems in reading comprehension were developed and adapted by the researchers instead of using standardized tests. This suggests a need for the refinement and validation of these measurements through broader testing.

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