

## English reading comprehension issues challenged by Cambodian middle students: principal factor analysis

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### ABSTRACT

The study aims to uncover both contributing factors and underlying causes of English reading comprehension problems of middle school students in Cambodia. A mixed-method design was employed, combining quantitative data from a 5-Likert scale questionnaire and qualitative acumens gathered through two in-depth interviews and real classroom observations. The study involved the participation of lower-secondary school students (n=372) and teachers (n=6). Factor analysis emerged as an appropriate method for analyzing the data owing to its function to identify distinct factors and degrees of influences. Language knowledge stood out as the most prominent, while the reading process was found to be the least influential. Likewise, contributing causes to these factors included limited engagements with English materials outside of school, overcrowded classrooms, time constraints, disparities in textbooks, and a lack of effective reading strategies and processes. Additionally, factors such as family, genders, socioeconomic differences, learner traits, and the impact of technology shall be included for future research to gain a deeper understanding of the context, as well as empirical study.

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## 1. INTRODUCTION

The English language proficiency among Cambodian lower secondary level students remains very low, as indicated by consecutive years of grade twelve examination results. These results have consistently highlighted dissatisfaction with English language attainment. For instance, in 2012, only 85% of students in Kep Province passed with low English scores, a slight improvement from the previous year's 65 percent [1], [2]. Similarly, a high school in Preah Vihear Province reported that out of 146 adolescents, only 14 achieved excellent English scores, representing a mere 9.5% success rate [3]. The downward trend in English language performance persisted in 2014, reaching an all-time low due to the implementation of new stringent measures in national examinations. More concerned, the results of twelfth grade national exam in 2023-2024 academic year showed unchanged such as 8.4% in Mondulkiri, 20.8% in Kep and 21.68% in Pailin Province [4]–[6] since English was integrated into state exams in 2006 even though efforts to solve the issues. Hence, the

consecutive proof of poor results highlights challenges in English language education in Cambodia, which signals further attention and intervention to improve student outcomes.

For further evidence, the score of the Test of English as Foreign Language for Cambodians (TOEFL-iBT) was 472, marking it as the lowest score in the region, particularly among the Association of South-East Asian Nation member countries (ASEAN), as reading comprehension score averaged 15 out of 30 in 2014 and 19 out of 30 in 2021 [7]. Despite efforts, Cambodia always remains one of the lowest proficient English-speaking nations by the English First, a global organization based in the Britain [8]. Additionally, absence of statistical reporting middle students' scores raises doubts about the effectiveness of their education and several factors such as unstandardized preparations, poorly constructed examination papers, teacher influences to the student' English scores and so on devalue reliability of the scores or results. Therefore, focusing on results from the twelfth-grade national examinations provides more reliable and pertinent insights.

The issue at hand has been extensively studied on a worldwide scale; nonetheless, many of those studies used analysis methods such as score comparisons, Microsoft Excel, regression, t-test, or analysis of variance (ANOVA), while factor analysis method has not been utilized [9]–[16]. Only research by the author in 2019, using such a method at high school levels, was found and he suggested increasing sample sizes, including external variables, considering the use of additional tools, and focusing on lower grade levels like middle school. Saving these limitations, this study aims to investigate these issues among middle school students in Cambodia with such a method, where no online or other available information is gatherable. Because this methodology has not been yet found in other research in reading comprehension problems encountered by students at middle levels both locally and globally, employing it for this study would offer new aspects for analysis pertaining the main objectives, the exploration of the impacting factors from scattering statements of problems from computations.

## **2. LITERATURE REVIEW**

### **2.1. Common issues of English reading comprehension**

#### **2.1.1. Reading approach issue**

Reading English comprehension is still a fundamental concern even though reading specialists have developed various methods to help language learners read. Carroll [17] and Gough [18] created top-down and bottom-up reading models to let pupils understand and make spot-on assumptions. The studies [19]–[22] suggested that reading the smallest to largest language components could reveal the message. Then, Coady [23] and other scholars continue to use it in their research. This model also helped elementary and middle schoolers read 250-350-word texts [24]. Readers of this model split, apply syntactic concepts, scan, rephrase preliminary information, hunt for basic terms or phrases, and so on. A myriad of researchers employed them with extensive carefulness by using these processes for promoting second language acquisition [25], [26]. Literacy and interactive models were pigeonholed as novelties. Interactive sources and inputs helped each other while reading [27], [28], and in other ways (literacy), making literal understanding and reading achievement manageable. Lin [29] described it as serializing every character in a text.

#### **2.1.2. Reading strategy issue**

In many studies, reading performances with supplementary strategies revealed positive results like in the studies of [30]–[37]. Likewise, Anderson [38] thought it included regular literature, while goal-setting helped academic readers control techniques [39]. Good readers may review their ideas [40], whereas poor ones may not detect their comprehension or strategy [41]. Mikulecky [42] stated that many well-made English textbooks with suitable foci of reading strategies could confer miraculous fertility. Teaching with reading skills normally offers benefits; on the other hand, lack of using strategies leads to uncompromising outcomes. Overall, a large number of studies provide concrete evidences supportive the effectiveness of implementing reading strategies in improving reading proficiency across diverse contexts and cultures of learners.

#### **2.1.3. Linguistic knowledge issue**

There are a lot of studies have contributed valuable insights owing to their findings for investigating the role of linguistic knowledge in English reading comprehension. Bernhardt [43] stressed on the exploration of the significance of vocabulary, phonetics, morphology, semantics, and syntax in helping reading comprehension, while Anjomshoa and Zamanian [44] found the detrimental impact of limited language awareness among English as a second language (ESL)/English as a foreign language (EFL) learners, which was a main factor that led learners to misinterpret reading texts. Azeroual [45] supported the significance of linguistic competence by claiming that a fundamental prerequisite for better English reading comprehension required high levels of linguistic knowledge. Further studies, such as those conducted by Jeon

and Yamashita [46] and Prior *et al.* [47], also supported this perspective and rigidly confirmed that the importance of linguistic competence could enhance the comprehension. Unlike other research, authors [48], [49] showed empirical evidence of the momentous impact of lexical competence on reading comprehension. Furthermore, Nergis [50] underlined the critical role of vocabulary and syntax in comprehension processes. The studies from Masrai [51] and Lee and Chen [52] aiming to look through the association between language knowledge and reading comprehension, found strong and supportive evidence the idea that language skills meaningfully affected reading comprehension significantly. Zhang and Lin [53] later further validated these findings, weighing up the requisite role of linguistic dimension in comprehension advances.

In addition, Zhang and Zhang [54] researched into the impact of lexis knowledge on reading comprehension, shedding light on the intricate interplay between vocabulary and reading ability and Alqurashi [55] expanded on this, examining relationship linguistic competence and psychological anxiety with English reading outcomes. Not differently, Cadime *et al.* [56] discovered the same results from their study and Alderson [57] confirmed that language proficiency plays as a critical basic for understanding English texts, but Nagy [58] argued that linguistic matters may not become potential consequences at higher proficiency levels, but learners still regarded it as fundamental to comprehension processes. Drawing from these findings, it becomes evident that linguistic proficiency functions a central role in English reading comprehension. Without a firm foundation in language competence, readers may challenge to comprehend English texts effectively, obstructive to their ability to understand sentences, paragraphs, and passages correctly.

#### 2.1.4. Motivation issue

The importance of readers' motivation in influencing reading performance is pointed out by various scholars in the field. Regardless of reading strategies and linguistic abilities, reading performance requires a great extent of motivation on which significantly impacts [59]–[61]. Encouragement and other motivational drivers play a key role in nurturing readers' desire to engage with the content [62], [63]. Ma and Zhao [62] observed that readers may give up their reading if they are unmotivated or find reading materials barren. This highlights the negative effects of motivation on sustained reading efforts. No matter what background do they come, but motivation is a potential indicator. Evidently, O'Donnell *et al.* [64] found that children from low-income families with a strong impetus to read unveiled upgraded performance despite their underprivileged backgrounds, highlighting the socio-economic barriers have no effect under transformative power of motivation.

Moreover, without motivation to read, students reduce the activation of previous knowledge and the utility of reading techniques effectively [65], [66]. Chang *et al.* [65] underlined the interaction among motivation, prior knowledge activation, and reading strategy application, suggesting that motivation acts as a catalyst for effective reading progressions. Tang *et al.* [67] asserted the significance and contribution of the association between encouragement, reading performance, and cooperative learning Chinese context. These findings clearly showed the grave function of motivation factors in cultivating effective reading habits and enhancing reading comprehension. It is important to recognize that these factors can have immediate and simultaneous effects on the reading process, influencing both engagement and comprehension outcomes [66], [67].

## 2.2. English reading comprehension issues of middle school students in Cambodia

English reading comprehension issues at middle school levels have yet to conduct in Cambodia, but the most relevant study was conducted by Dara [68], who investigated reading comprehension issues at high school levels. Except his paper, there have been no articles published and discoverable virtually. Even though there are not prolific articles about the above-mentioned problems, some publications that have focused on Cambodian context are like Sun [69] conducted on the curriculums, while Igawa [70] wrote about English language in education during the transitional periods. Besides, Em *et al.* [71] paid concerns on student's motivations. Moreover, Cunningham [72] intended to analyze developments of English macro skills at private schools and Chhouk [73] tried to use new perspectives for promoting the abilities for critical English reading at undergraduate levels.

Lor [74] also observed the tendency of twentieth first century learning and its impacting factors by embracing the transformative concepts at high school levels and Channy [75] incorporated flipped classroom methods for listening enhancement for pre-tertiary levels. In conclusion, the research field in Cambodia has just appeared thriving for the last decade and only 3215 papers were found published, cited in their research [76].

## 2.3. Studies on English reading comprehension issues at middle school levels

Doing research on English reading comprehension issues is not a new topic. In fact, a plethora of studies on English reading comprehension problems has been conducted across the world from European countries to various parts of the globe, including most ASEAN member states such as Malaysia, the

Philippines, Indonesia, Thailand, Vietnam, and Singapore, except Cambodia [77]– [81]. The central focus of these studies lies in identifying reading comprehension issues and exploring strategies to help middle or high school students improve their English reading comprehension. Despite the fact that neighboring countries have investigated this matter, their findings have yet to be effectively applied to improve the English acquisition of Cambodian middle school learners. This situation clearly indicates an urgent need for research or observation grounded in the Cambodian context. Based on the relevant literature and identified research gaps, this study formulates three main research questions as follows:

- What factors influence the English reading comprehension of Cambodian middle school pupils?
- What is the degree of influence of these factors?
- What are the underlying causes of these factors?

### 3. METHOD

#### 3.1. Participant and design

The research employed a mixture of qualitative and quantitative approaches known as convergent mixed method design. The quantitative method was to gather preliminary sources to support the research aims and provided a foundation analysis for the issues associating research question number 1 and 2. It concentrated on obtaining numerical data through questionnaires, which were then analyzed using exploratory factor analysis (EFA). At the same time, qualitative data were as well collected to respond to research question 3, which aimed to discover underlying causes of the found issues suggested by the quantitative one. Two kinds of participants were invited to join in this study: students and teachers, but there were several steps for data collection. 372 students came from four different middle schools and they consented to complete the questionnaire. Among them, 217 students were females, while 155 students were males. Additionally, those students were from grades 7, 8, and 9 in their academic year 2023-2024. 94 students were from seventh grade, 82 students were from eighth grade and 196 students were from ninth grade. Beyond the students' participations, there were also 6 teachers of English, three of whom were female as shown in Table 1.

Table 1. Contributions of participants, genders and grades

Data source	Number	Percent (%)	Valid percent (%)	Cumulative percent
Gender:				
F	217	58.3	58.3	58.3
M	155	41.7	41.7	100.0
Total	372	100.0	100.0	
Grades:				
G7	94	25.3	25.3	25.3
G8	82	22.0	22.0	47.3
G9	196	52.7	52.7	100.0
Total	372	100.0	100.0	
Teachers:				
F	3	50.00	50.00	50.00
M	3	50.00	50.00	100.00
Total	6	100.00	100.00	

#### 3.2. Instrument and data collect process

This study administered three instruments: a questionnaire, semi-structured interviews, and an observation checklist. The questionnaire, instituting of 20 Likert-scale statement items from the Dara's study [68] which modified from previous studies, was about students' reading comprehension challenges, while semi-structured interviews with students and teachers had a purpose to explore the causes behind the issues, and the observation checklist captured instantaneous classroom interactions for additional insights. Together, these tools provided an inclusive and insightful analysis of the factors affecting students' reading comprehension.

#### 3.3. Validity, reliability, and analysis

Before factor analysis, data validity and reliability were examined by using the Kaiser-Meyer-Olkin measure of sampling adequacy measure (KMO), Bartlett's test of sphericity, and Cronbach's alpha. The KMO value (0.772) confirmed sample adequacy, while Bartlett's test ( $p=0.000$ ) indicated significant variable relationships. Reliability was strong (Cronbach's alpha=0.726), exceeding the 0.600 threshold, as shown in Table 2. This study used two methods: quantitative analysis via EFA after validity checks and qualitative analysis through interviews and observations to explore underlying factors and strategies for mitigating external influences.

Table 2. Results of reliability and validity

Name	Values	Item number
Cronbach's alpha	.726	20
Cronbach's alpha based on standardized items	.727	20
KMO measure of sampling adequacy	.772	20
Bartlett's test of sphericity:		
Approx. Chi-square	1208.584	20
Df	190	20
Sig (p-value)	.000	

## 4. RESULTS AND DISCUSSION

### 4.1. Results

#### 4.1.1. Derived factors

The exploratory factor analysis extracted five reliable factors explaining 49.36% of total variance. These factors included linguistic knowledge, reading strategies, motivation, and reading process that were derived from 20 items meeting Nunnally's criterion of 0.40 for loading values. The first factor, known as linguistic knowledge, had 17.15% of the variance and stood at the top. Therefore, it was thought as the most influential determinant of reading comprehension. The following factors was reading strategy with the value of variance at 11.48%, motivation at 8.80%, and reading process at 6.82% and background knowledge at 5.11%. This suggested that there were multiple dimensions attributing to comprehension difficulties among Cambodian middle-school students.

According to the pattern matrix, the statistics revealed five principal challenges influencing Cambodian middle school students' English reading comprehension such linguistic knowledge, reading strategies, motivation, reading process and background knowledge, listed in order of their factor loadings. However, the fifth factor, having of only two weakly loaded items, was excluded due to its insufficient reliability and did not meet the requirements. The naming of the factors was determined according to the thematic similarities among the clustered statements identified through principal factor analysis as shown in Table 3. This finding supported Hypothesis 1, which sought to determine the key influencing factors; at the meantime, it answered to Hypothesis 2 too because the result provided a statistic evidence-based proof of their hierarchical order. The findings showed current and context-based predominant barriers to students' reading comprehension, as shown in Table 3.

Table 3. Factors with loadings, eigenvalues, variances and accumulative

Factors	N of item	Eigenvalue	Variance explained (%)	Accumulative (%)
1. Linguistic knowledge issue	5	3.429	17.148	17.148
2. Reading strategy issue	5	2.296	11.478	28.625
3. Motivation issue	4	1.761	8.803	37.428
4. Reading process issue	4	1.364	6.820	44.248
5. Background knowledge issue	2	1.022	5.111	49.359

#### 4.1.2. Causes behind English reading comprehension of middle school students

Research question 3 was designed to dig out what main causes behind the reading comprehension issues. Hence, the six-question interview was conducted with middle school students. Consequently, the results provided meaningful insights into the underlying roots of their reading comprehension difficulties. Lots of students wrote their answers in term suggesting about little reading time each day, which reflected inadequate reading engagement and insufficient exposure to English materials. A little or no practice is likely a powerful factor contributing to their weak comprehension skills.

Moreover, students indicated that they liked their English textbooks, while a few of them uttered unpreferred. However, even though there were many participants who preferred the textbooks, they raised about difficulties in understanding the contents of lessons due to complex grammar, technical vocabulary, and the absence of Khmer translations by teachers. Several students also noticed their textbooks as old-fashioned, signifying that the books may not align with their current language proficiency levels or learning needs nowadays.

Additionally, most of the participants stated that their teachers had taught them reading strategies, yet their explanations revealed noticeable misunderstandings. As what was observed and compared with their answers, they totally confused genuine reading strategies with general advice such as reading more at home or paying better attention during lessons. Concerning with the same content questions to ask the study-participated teachers of what strategies they had used to improve their students' reading competency, all of

them kept the questions unanswered, leading to a conclusion that they did not use any reading strategies and this did support well. The findings directly addressed research question 3, exposing not only the root causes behind reading comprehension problems but also the broader instructional and underscoring material-related challenges that impede students' reading development.

#### 4.2. Discussion

The study highlights four significant factors influencing English reading comprehension among middle school students in Cambodia namely language knowledge issues, reading strategy, motivation, and reading process, while background knowledge is excluded. Among these factors, lack of language awareness stands out with high degrees of loading scores and is treated as the most influential. It corroborates with the findings from previous studies conducted by scholars such as [82]–[89]. Furthermore, the study reveals visions from the two interviews, casting light on the hidden causes. Approximately 75% of students reported limited English reading outside class, reflecting concerns over the scant time allocated to English instruction in the national syllabi. Research underscores the critical role of regular reading in language development [90], [91]. Similarly, and alarmingly, only 37% of students read English at home, infrequently or inconsistently. This issue potentially hinders language skill progress [88]. To intervene to the discussed issue, promoting regular English reading, including syllabi revisions, teacher support, and encouraging home reading habits can enhance English reading comprehension among junior high school students in Cambodia.

The study also highpoints the noteworthy role of reading strategies in English language learning and teachers' lack of implementation of effective strategies is a notable concern. From interviews and observations with teachers, they left questions regarding reading strategies blank, causing wonder and leading to inexplicability. This also posts doubts about the adequacy of pre-service teacher trainers in training next educators with the necessary skills to teach reading effectively. Research findings indicate that a significant proportion of participants rarely employ rigorous reading tactics during classes, and effective reading strategies are underutilized by a considerable percentage. Lungu *et al.* [92] found that teachers lacked sufficient understanding of how to effectively apply instructional strategies in teaching reading comprehension. Conversely, numerous studies have demonstrated the positive impact of various reading strategies on language acquisition and comprehension [9]–[16], [28]–[35].

From the findings of the study, motivation receives the third rank which yields impacts affecting English reading comprehension among Cambodian middle school students. Motivation, either extrinsic or intrinsic deemed as a crucial catalyst for inspiring students to engage with English learning or other languages, is often sourced from both instructors and parents. Fatmawan *et al.* [93] underscore its vitality by stressing that both instructor's encouragement and parent's support positively influence students' motivation to read English literature. Sajeerat [41] emphasizes that motivation's pivotal function in sustaining reading habits. Without it, students may not have desires to involve with reading. Although Dara [68] acknowledges motivation's essentiality in promoting reading habits among senior high students, specific causes are not elaborated. There are many reading strategies, for example scanning and skimming that can aid students identify crucial information and ideas, improving efficiency in understanding passages better and managing time during reading effectively [94]. Teachers also have a vital role by establishing a supportive environment for interactive learning and discussions that help student to better comprehension. The incorporation of technology is observed and the results uncovered that digital integration has also been shown to enhance comprehension by providing engaging, interactive platforms for learning [95]. Recent research emphasizes the use of AI-powered to boost motivation and improvement of reading comprehension across all investigated themes [96]. Additionally, gamification techniques have been linked to higher levels of engagement, improving reading outcomes [97].

To solve all encountered problems, more informative and down-to-earth solutions are demanded. Firstly, increasing English instructional time from 4-5 hours to at least 10 hours or more per week is crucial for students to develop effective reading skills [98]–[101]. Secondly, making accessible libraries within schools or communities can provide good resources for students who can practice more reading and enhance their thinking skills [102]–[107]. Encouraging self-directed learning can foster curiosity in English and advance comprehension skills over time [108]. These measures to handle with this problem require such as policy changes, resource allocation and distribution, and cultural adaptation to support students' development of essential English language skills for academic and professional success.

At the same time, students' low understanding and language growth strongly connect with the issues of inadequate strategy implementation from the study. It calls for actions action to improve teachers' performance imperatively and immediately. Dealing with this can ensure they are equipped with the necessary skills to effectively teach reading [109]. Moreover, the quality of pre-service teacher education, including rigorous entrance examinations and comprehensive monitoring of the curriculum should be given high attention, while ongoing provision of professional evaluation and training should be planned and

conducted regularly [110]. Therefore, future teachers with high-quality training and with proficiency in applying lucrative reading strategies will be more in the education system. They also can better support students' language learning needs.

Overall, with combining previous research' findings and this study's, it makes pedagogical implications evidence-based and practical for teachers, educators and policymakers. These recommendations, such as revising national syllabi and promoting self-directed learning, strict measures for pre-service-teacher entrance examinations, offering high-quality for teacher-training could provide effective teaching and learning at middle schools since qualified teachers can earn creditability from students [111]. Even though this study amplifies a number of respondents and supplements more research instruments, targeting to make it robust and hintful to all stakeholders, some limitations of this study are acknowledged like excluding many other factors and non-experimental-study conductance. Hence, the future research would cover these gaps that could yield inclusive outcomes and deeper insights into implementation strategies for potential obstacles and ensure the practicality and effectiveness, enriching analysis and leading to vigorous solutions for improving English language education outcomes in Cambodia.

## 5. CONCLUSION

The subsequent and substantial issues revolve around difficulties in building lexical resource and implementing effective reading strategies, suggesting a strong need for improvement in this area. Moreover, high scores from inadequate encouragement underscore the importance of motivational support in fostering reading habits. The last factor pertains to challenges encountered during the reading process, shedding light on obstacles faced while engaging with reading materials. The underlying causes of these components are evident in the dataset, supported by interviews and classroom observations. These causes include limited practice opportunities, misperceptions and underutilization of reading strategies, challenges with content comprehension, the overwhelming volume of content within two certain textbooks, insufficient teaching time, and overcrowded classrooms. Extensive investigations on this issue by adding more factors, raising large sample size or empirical studies are strongly recommended for future research. Family, genders, financial support and personal self-regulation factor should be embedded in next research to gain deep insight for improvements of reading proficiency.

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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

## CONFLICT OF INTEREST STATEMENT

The authors would like to state that there is no conflict of interest since all of us have a consensus and entrust our responsibilities for systemic parts to fabricate this fresh article with a resolute purpose to share this work to all public readers, particularly.

## INFORMED CONSENT

In this study and throughout the whole process of data collection, the participant's consents are objectively and ethically considered and approved prior to conductance. Therefore, all information of the given answers both from the target students and teachers have been kept confidentially to serve for academic research only. Moreover, in a case that some of their bio-information is required, the agreement from them has to be reached first before their identities will be checked. All questionnaires and semi-structured interview questions are not asked them to write their names on, but just their grades, genders and school names.

## ETHICAL APPROVAL

This study has been checked plagiarism which is considered seriously abusing if higher plagiarism rate is detected and it is written meticulously by the authors and the detection rate is low. Moreover, all procedures of data collections are requested and consented by the participants voluntarily.

## DATA AVAILABILITY

The data supporting this study's findings are available on request from the corresponding author, [DD], with the approval in some cases. However, there are no restrictions for the data or published article, which contain information that could compromise the privacy of research participants, are not publicly available. Moreover, this paper is explorable through many websites such Google Scholar, ResearchGate, Scopus, EduLearn and DOAJ.

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