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The mediating effect of early literacy activities on primary school learners' reading comprehension

Abstract

Reading comprehension is essential for educational achievement as it allows students to engage with and comprehend content across all subject areas. It is acknowledged that early literacy activities and parental attitudes toward reading have a significant impact on children's development of reading comprehension. However, the mechanisms through which these parental factors affect reading comprehension, particularly the potential mediating role of early literacy activities, remain insufficiently examined. This research investigates the connection across students' reading comprehension, early literacy activities, and parents' reading attitudes. Additionally, it addresses the significance of early literacy activities as a mediating factor in this relationship. This study employs a quantitative study involving cross-sectional survey design. The participants in the study involved fifteen primary schools located in Kelantan that comprised 393 fifth-grade students along with their parents. The participants were chosen through a random selection of multi-level approaches. Both descriptive and inferential analysis, including structural equation modelling for the data analysis, were used in this study. The results revealed that parents' reading attitudes had a moderate direct influence on early literacy activities, as did early literacy activities on students' reading comprehension. There was no direct influence of parents' reading attitudes on comprehension of the student's reading. The indirect impact of parents' reading attitudes on students' reading comprehension was found to be significant through early literacy activities, which acted as a full mediator in the relationship between these attitudes and students' reading comprehension. The findings of this research offer practical insights into empowering parents to foster a learning environment at home.

Keywords: early literacy activities, parents' reading attitude, home literacy environment; reading comprehension.

1. Introduction

Proficiency in reading plays a significant influence in the lives of individuals. It serves as a foundation for education, influencing academic achievements at school. Additionally, it holds significant implications for economic prospects and

future endeavours by enhancing an individual's market value and social engagement within society (Hulme & Snowling, 2013; OECD, 2019). The process of acquiring reading skills in individuals is complex because the process can be influenced by numerous cognitive and non-cognitive factors, along with the environment at home for learning (Anders *et al.*, 2012; Ramirez *et al.*, 2019; Susperreguy *et al.*, 2020). As a result, it is critical to consider a wide range of factors beyond just cognitive abilities for reading skills.

Reading skills extend beyond simply decoding individual words, phrases, or passages; their primary purpose is to extract and construct meaningful understanding from a diverse range of texts—a process known as reading comprehension (Smith *et al.*, 2021). This skill requires synthesising information from the text with prior knowledge, enabling readers to grasp underlying messages, themes, and context, which is fundamental for academic and lifelong learning (Shanahan & Lonigan, 2010). Readers with limited prior knowledge of a text's content may experience comprehension barriers, as they may struggle to relate new information in the text to their existing knowledge. Consequently, developing reading skills must prioritise comprehension to fulfil the essential purpose of reading.

Although most primary school students demonstrate fluency in reading, a subset struggles to comprehend the substance or meaning of what they read (Lubliner, 2002; Nadia & Delliana, 2020). These challenges in reading comprehension can significantly impact their educational experiences and academic performance (Kendeou, *et al.*, 2016; Elleman & Oslund, 2019). Difficulties in text comprehension may result from instructional approaches that focus more on technical reading skills, like letter recognition and pronunciation, rather than emphasising reading comprehension (Singh & Mishra, 2013). Additionally, research on reading comprehension among primary school students in Malaysia remains limited (Oakhill, 2020), indicating a research gap that needs addressing. As a result, it is critical to emphasise reading comprehension in research so that students develop not only fluent reading skills but also the ability to understand and effectively use the information they read.

The growth of students' reading comprehension is profoundly influenced by their social environment, particularly within the family context (Dong *et al.*, 2020). Parents and caregivers serve a pivotal role in establishing a positive home learning environment by fostering supportive attitudes, facilitating engaging literacy activities, and providing essential learning resources (Elliott, *et al.*, 2021). Positive parental attitudes, especially toward reading, play a critical role in fostering literacy activities that develop foundational skills for reading, writing, and comprehension at the elementary school level *et al.*, 2023).

Parents with a strong disposition toward reading tend to read frequently, possess a larger collection of books, and engage in regular reading activities with their children, thereby reinforcing early literacy development (Niklas & Schneider, 2017). Such early literacy experiences create a robust learning foundation, which not only enhances immediate literacy competencies but also has long-term effects on students' academic trajectories, extending well into secondary education (Dong *et al.*, 2020). Therefore, this study highlights the influence of parents' reading attitudes and early literacy activities on students' reading comprehension. Additionally, it examines the mediating influence of early literacy activities between parents' reading attitudes and authoritative parenting on reading comprehension among students.

2. Literature review

2.1 The influence of parents' reading attitudes

Recent studies also underline the significance of parents' duties in shaping children perceptions of reading through their attitudes. When parents demonstrate interest and joy in reading activities, children prone to view reading as exciting and meaningful rather than just a school task (Baker & Scher, 2002; Silinskas *et al.*, 2020). This positive perception can significantly enhance children's motivation to read, hence contributing to improve reading comprehension (Silinskas *et al.*, 2020). Parents who enjoy reading tend to participate in shared reading activities more frequently with their children, storytelling, and providing a range of reading resources at home (Manolitsis, *et al.*, 2013). Moreover, positive parental attitudes toward reading influence how they engage with their children regarding books and reading. Parents who value reading are more probable to discuss books, ask thought-provoking questions, and encourage their children to express their opinions and ideas about what they read. These interactions help children develop deeper comprehension skills by connecting their reading to personal experiences (Noble *et al.*, 2019).

Niklas *et al.*, (2020) examined the connection among parental attitudes toward shared reading and language proficiency in three-year-old children, employing a structural equation model in United States. The number of books at home, the frequency of reading activities, and library trips are examples of literacy environment components that they expected would operate as mediating variables in this relationship. This longitudinal study assessed children's skills three times, with six-month intervals between each assessment. In the initial model without mediating factors, parents' attitudes during the first interval significantly explained children's linguistic abilities in the third interval. This suggests that parents' reading attitudes have a lasting influence on the development of their children literacy.

Supporting this view, Alramamneh, Saqr and Areepattamannil (2023) identified a slight to moderately favourable relationship between parents' reading attitudes and early literacy performance by children. Similarly, Van Steensel (2006) discovered a substantial positive correlation between family reading-aloud activities and improved reading skills among first- and second-grade students. Collectively, these findings from past research consistently demonstrate a strong link between positive parental reading attitudes and children's reading abilities. This emphasises the critical role of parents in nurturing literacy skills by fostering positive reading attitudes early in a child's educational journey, thereby enhancing interest in literacy activities and contributing to reading skill development. Therefore, this study posits that parental reading attitudes directly influence children's reading comprehension.

2.2 The impact of early literacy tasks at home

Early literacy tasks at home constitute a vital element of the environment of home literacy and contribute to enhancements in literacy skills; including reading comprehension (Sénéchal & LeFevre, 2002; Dong *et al.*, 2020). Sénéchal *et al.* (1998) described two categories of literacy encounters within the household involving formal and informal literacy tasks. Formal literacy tasks involve parents and children engaging on printed materials, such as parents teaching children to recognise letters or spell words. Conversely, informal literacy tasks are activities involving written messages, for example, parents reading stories to children before bed. During reading sessions, parents may elaborate on the story's meaning, and children may inquire about the definitions of specific words. In this type of interaction, the child is introduced

to printed material, albeit in a casual manner. Previous research has shown that formal literacy activities forecast reading achievement through letter knowledge (Stephenson *et al.*, 2008; Manolitsis, *et al.*, 2011) while informal literacy activities predict reading achievement through vocabulary effects (Roth, *et al.*, 2002; Torppa *et al.*, 2007). Therefore, to promote a well-rounded approach to early literacy instruction, parental participation in both formal and informal literacy activities is crucial, since each makes a distinct contribution to children literacy development.

Previous research including the 'Progress in International Reading Literacy Study (PIRLS)' 2016 which is research on global reading achievement has documented the significance of early literacy tasks to foster achievement in reading comprehension among primary school-aged students (Mullis & Martin, 2019). The PIRLS 2021 study confirmed that early literacy activities remain essential for fostering reading achievement among primary students, even amid challenges posed by the COVID-19 pandemic (Mullis *et al.*, 2023). The 2021 assessment highlighted that parental support, particularly in early literacy tasks, was correlated with higher reading comprehension achievements, showcasing the lasting influence of a supportive literacy environment at home (Mullis *et al.*, 2023).

Dong *et al.* (2020) used a mixed-effects meta-analysis to explore the impact of home literacy setting characteristics on reading comprehension among children, examining 59 articles published between 1998 and 2018. The results of the meta-analysis demonstrate that children's reading comprehension and the home literacy environment have a moderately positive correlation. Previous research has also demonstrated that the early home learning environment has a lasting impact until secondary school on the students' learning. Lehl *et al.* (2020) also investigated how early numeracy and literacy practices at home in the early stages of schooling, up to the secondary level, influence children's reading and mathematical skills in Germany. This longitudinal study was conducted on children aged 3 to 13 years to examine the long-term relationship. Findings show that different early activity experiences predict different literacy and numeracy skills and there is potential for long-term effects. The authors concluded that enriching children's early years with a learning environment at home enhances children's proficiency in both mathematics and reading.

Additional studies investigated the mediating impact of the home literacy environment. For example, Li *et al.* (2020) discovered that reading comprehension is significantly mediated by the home literacy environment between cognitive and psychological factors. Relyea *et al.* (2020) also revealed that the home literacy setting does not have a substantial direct influence on English reading comprehension, while Niklas *et al.* (2020) found parents' attitudes towards reading activities with children affect the quality of the home literacy setting brought by parents and subsequently, the home literacy environment positively affects children language skills. Given this context, the current study aims to gauge the influence of parents' reading attitudes and the role of early literacy activities on students' reading comprehension. It further explores how early literacy activities acts as a mediator between parental reading attitudes and students' reading comprehension. Although prior research had addressed the impact of parental attitudes and early literacy separately, there is limited research investigating the combined effects of these variables on reading comprehension. By exploring these interconnections, this study seeks to address a notable gap in the literature, offering new insights into how parental reading attitudes and early literacy activities at home may enhance students' reading comprehension.

3. Method

3.1 Research design

This study employed quantitative technique with a correlational research design. Data collection was accomplished via a cross-sectional survey, which allows for the collection of research data at a particular time point from a population sample. The questionnaires in this research were segmented into two parts: one set for students and the remaining for their parents. Each questionnaire set provided to parent-student pairs is assigned a unique and corresponding identification (ID) number. This procedure is designed to ensure precise data matching between parent and student responses, thereby enhancing the accuracy and depth of correlation analysis.

3.2 Sample study

The study population consists of fifth-grade students from ten districts in Kelantan, Malaysia. According to the State Education Department of Kelantan, there were 28,953 fifth graders in the state overall in 2022. Based on the calculation using Cochran's formula (Cochran, 1977), the minimum required sample size is 264. Additionally, Salkind (2018) recommended increasing 40% to 50% to the sample size. In accordance with Salkind's suggestion (2018), 50% of the sample size was added to the obtained sample size ($264 * 50\% = 132$). Thus, adding 132 to the initial sample size of 264, the total minimum sample size needed is 396, representing 50% of Salkind's recommendation (2018). After considering the sample size based on Cochran's calculation and Salkind's recommendation, the researcher chose a total of 396 samples in this research.

The sample selection in this study employed a multistage random sampling method using stratified random sampling to strengthen the samples' representative quality. Given the diverse landscape of Kelantan, ten districts in the state were divided into four zones according to geographic regions. Based on the population in each zone, 15 schools were selected using simple random sampling and 30 students were randomly selected from each school. The researcher collected 393 completed questionnaires after carefully reviewing those that were returned by students and their parents or caregiver. The data underwent descriptive analysis using Statistical Package for Social Science (SPSS) IBM 26.0, while inference analysis was conducted with AMOS 26.0 software through Structural Equation Modelling (SEM).

3.3 Instrumentation

Data was obtained using selected items from Survey of Progress in International Reading Literacy Study (PIRLS) 2016 Learning to Read for Home questionnaire (IEA, 2016) and Malay Language reading comprehension assessment by Hashim *et al.* (2006).

3.3.1 PIRLS Learning to Read Survey for Home Questionnaire

Selected items from the PIRLS 2016 Learning to Read Survey for Home (IEA, 2016) were adapted for this study to assess parents' attitudes regarding reading activities and early literacy practices at home. The selected questionnaire items obtained approval from the International Association for the Evaluation of Educational Achievement (IEA) for adaptation and translation from English to Malay language.

Parents' attitudes towards reading involve six items regarding parents' attitudes on reading practices at home scored on a five-point Likert scale varying from 1 (strongly disagree) to 5 (strongly agree). According to findings by the International Association for the Evaluation of Educational Achievement (IEA, 2016) the items achieved a Cronbach's alpha reliability of 0.80, which is considered high.

The questionnaire regarding early literacy activities at home comprises eight items assessing early literacy practices performed by parents with their child at home before starting formal schooling in primary school. A five-point Likert scale, with 1 representing never and 5 representing very often, was used to score the items. The questionnaire exhibited high reliability, with a coefficient of 0.81 based on findings by the International Association for the Evaluation of Educational Achievement (IEA, 2016).

3.3.2 Reading comprehension assessment

Malay Reading Comprehension Test for Primary School Students or *Ujian Kefahaman Bacaan Bahasa Melayu Murid Sekolah Rendah* is an instrument developed by Hashim *et al.* (2006) to assess reading comprehension in the Malay language among primary school students at grades four, five, and six. This instrument consists of 50 questions, and this study adapted 34 questions covering literal, inferential, and critical-creative comprehension to assess students' reading comprehension ability. The test comprises reading passages, questions or items, and answer options and administers without a time limit. The reliability for the constructed 50-item test is 0.815 based on findings by (Hashim *et al.*, 2006).

3.4 Data collection process

3.4.1 Ethical considerations

Ethics Committee approval from Universiti Putra Malaysia was obtained before conducting the study (reference number: JKEUPM-2022-416). Permission to conduct the research was also acquired from the Planning and Research Division of the Ministry of Education Malaysia, Kelantan State Education Department, as well as the school's headmasters who participated in this research.

Prior to data collection from students, parents were informed about the study through an informed consent form. Only students whose parents provided consent were included in the study. Parents completed the questionnaire at home that took approximately 20 minutes for completion. The completed questionnaires were collected, and the reading comprehension test was administered to students whose parents provided consent and completed the home questionnaires.

3.4.2 Procedure

Students were briefed about the objectives of the study before data collection began, and all information provided by study respondents was kept confidential by the researcher. Data collection took place within classrooms, requiring approximately 40 minutes. Students were given a choice to opt out from the research at any time if they opted not to participate.

4. Results

4.1 Validity and reliability of the measurement models

Firstly, a confirmatory factor analysis (CFA) was carried out to identify quantitative measures that assessed the reliability and validity for the proposed theoretical model. The author refers to Goodness-of-Fit indexes in evaluating model fit for the proposed model. Three categories of indicators exist, according to Hair *et al.* (2010) which are absolute fit, parsimonious fit and incremental fit. Three indexes are specified in this study by the researcher: Chi-square for parsimonious fit, Comparative Fit Index (CFI) for incremental fit, and Root Mean Square of Error Approximation (RMSEA) for absolute fit category. Students' reading comprehension is an observed variable that is also the endogenous (dependent) variable in this study. On the other hand, early literacy activities and parents' reading attitudes are latent variables that are also exogenous variables. Additionally, early literacy activities variable also serves as the mediating variable.

Figure 1 shows RMSEA index which is .061 (range .05 to .10 is acceptable), CFI = .960 (<.90) and Chisq/df = 2.47 (<5.0). It shows that the measurement model for early literacy activities, parents' reading attitudes and students' reading comprehension adhere to fitness indexes. The inter-item correlation for early literacy activities (ELA) and parents' reading attitudes (PRA) is $r = .531$; in which r value is less than .90 thus indicating that the measurement model's discriminant validity has been attained.

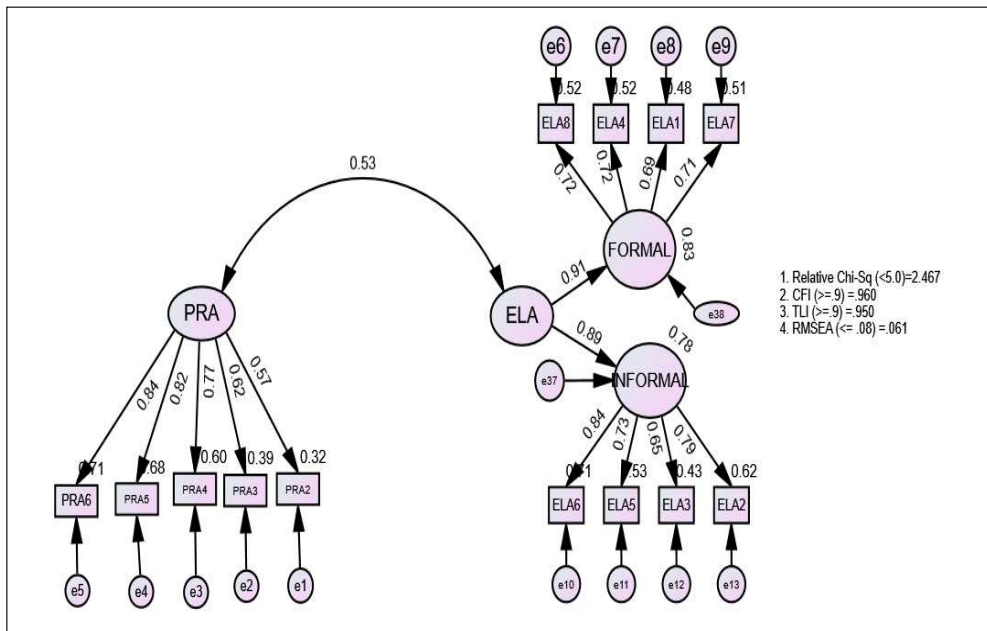


Figure 1: CFA result for the latent constructs of measurement model

Note: Early literacy activities (ELA); parents' reading attitudes (PRA)

Based on Table 1, the convergent validity is achieved because all items are statistically significant and have factor loadings between 0.57 and 0.84 which are greater than the threshold of .50. One item from parents' reading attitude which is PRA1 is dropped due to low factor loading. Furthermore, the regression weight is significant ($p < .05$) and the Critical Ratio value exceeds +1.96. This indicates that the dimensions are measuring the constructs in the model. This indicates that the model achieved construct validity as summarised in Table 1.

Table 1: CFA result of the measurement model for early literacy activities, parents' reading attitudes and students' reading comprehension

Path			Estimate	S.E.	Critical Ratio	Factor Loading	P
FORMAL	<---	ELA	1			0.912	
INFORMAL	<---	ELA	1.228	.142	8.651	0.885	.000
PRA2	<---	PRA	1			0.569	
PRA3	<---	PRA	1.045	.109	9.627	0.624	.000
PRA4	<---	PRA	1.265	.115	11.029	0.775	.000
PRA5	<---	PRA	1.15	.101	11.38	.822	.000
PRA6	<---	PRA	1.383	.12	11.502	.842	.000
ELA8	<---	FORMAL	1			.720	
ELA4	<---	FORMAL	1.151	.09	12.823	.724	.000
ELA1	<---	FORMAL	1.021	.083	12.265	.689	.000
ELA7	<---	FORMAL	1.124	.089	12.648	.713	.000
ELA2	<---	INFORMAL	0.893	.052	17.048	.788	.000
ELA3	<---	INFORMAL	0.795	.059	13.541	.655	.000
ELA5	<---	INFORMAL	0.843	.055	15.418	.727	.000
ELA6	<---	INFORMAL	1			.841	

Table 2 shows the reliability and validity values for latent variables which are early literacy activities [$\alpha = 0.879$, CR = 0.895, AVE = 0.810] and parents' reading attitudes [$\alpha = 0.843$, CR = 0.853, AVE = 0.542], are all well above their threshold values. Thus, the researcher could conclude that the measurement models for reliability and validity used in this research are confirmed.

Table 2: The measurement models for reliability and validity in the hypothesised model

Construct	Cronbach alpha (>0.7)	CR (>0.6)	AVE (>0.5)
Parents reading attitudes (PRA)	0.843	0.853	0.542
Early Literacy Activities (ELA)	0.879	0.895	0.810

4.2 Mediating effect of early literacy activities on the relationship between parents' reading attitudes and reading comprehension

In this study, the researcher employed SEM to carry out mediation analysis. Firstly, the author needed to determine the existence of the overall effect (total effect) across the attitudes of parents' reading and comprehension of students' reading before proceeding with the next test.

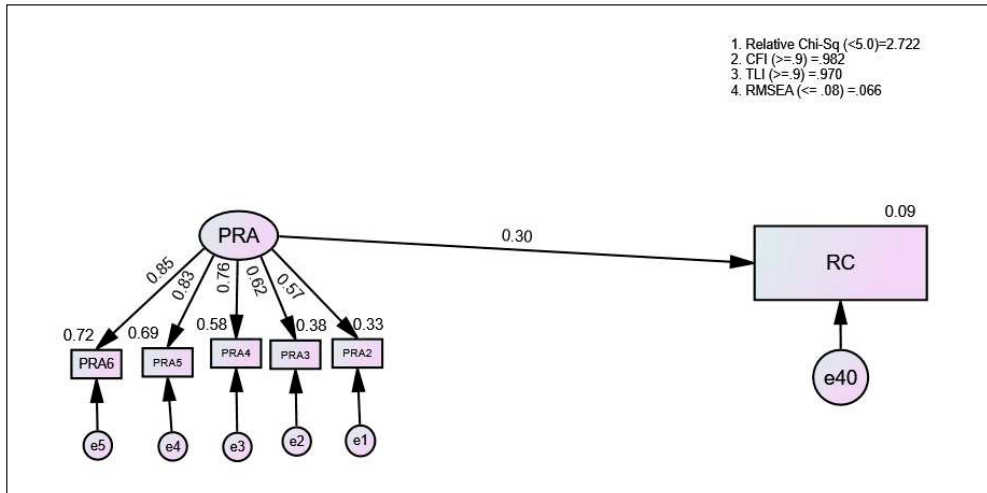


Figure 2: The direct effect model for parents' reading attitude on students' reading comprehension.

Note: Early literacy activities (ELA); parents reading attitudes (PRA); reading comprehension (RC)

The output in Figure 2 indicates that the beta coefficient is $\beta = .30$ and has a significant effect on students' reading comprehension at a significant level of $p = .000$. The fitness indexes meet the level of fitness required with the value of $RMSEA = .066$ (range .05 to .10 is acceptable), $CFI = .962$ ($> .90$), and ratio of $Chisq/df = 2.722$ ($< .5.0$).

For the next level of analysis, the researcher added the early literacy activities as a mediating variable into the model and ran further analysis. The output of Figure 3 shows that the beta coefficient of the direct effect of parents' reading attitudes on students' reading comprehension is reduced from $\beta = 0.30$ to $\beta = 0.10$. Furthermore, as mentioned by Awang (2012) when a mediating variable adds the model, the direct effect would be diminished Since part of the effects have transferred through the mediator. Hence, the analysis shows that early literacy activities is a mediator on the relationship within parents' reading attitudes and students' reading comprehension.

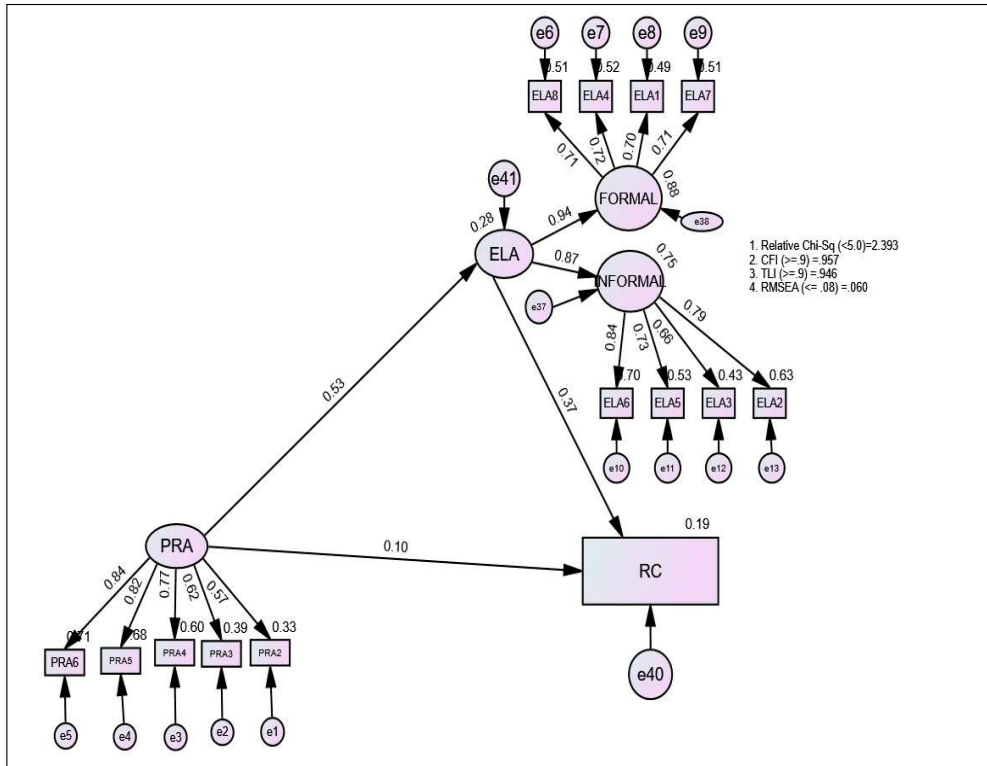


Figure 3: Mediation model for early literacy activities on the relationship between parents' reading attitude and students' reading comprehension.

Note: Early literacy activities (ELA); parents reading attitudes (PRA); reading comprehension (RC)

The fitness indexes of this model as in Figure 3 meet the threshold required with the value of RMSEA = .060 (<.10), CFI = .957 (>.90) and ratio of Chisq/df = 2.393 (<5.0). The text output for the mediation model of early literacy activities on the relationship within parents' reading attitudes and students' reading comprehension is shown in Table 3.

Table 3: The standardised regression weight for mediating model for early literacy activities (ELA) on the relationship between parents' reading attitude (PRA) and students' reading comprehension (RC)

Path		Beta	S.E.	C.R.	P	Result
RC	<--- PRA	0.103	0.577	1.648	0.099	Not Significant
RC	<--- ELA	0.372	0.481	5.310	0.000	Significant
ELA	<--- RC	0.527	0.100	7.078	0.000	Significant

Table 3 shows that there is a moderate direct effect of parents' reading attitudes on early literacy activities ($\beta = .53, R^2 = .28$). It means a unit change of parents' reading attitudes would cause a .530-unit change in early literacy activities. In other words, a total of 26% early

literacy activities is due to parents' reading attitudes. Besides that, there is a moderate size direct effect of early literacy activities on students' reading comprehension ($\beta = .372$, $R^2 = .19$). It means a unit change of early literacy activities would cause a .37-unit change in students' reading comprehension. In other words, a total of 19% of students' reading comprehension is due to early literacy activities.

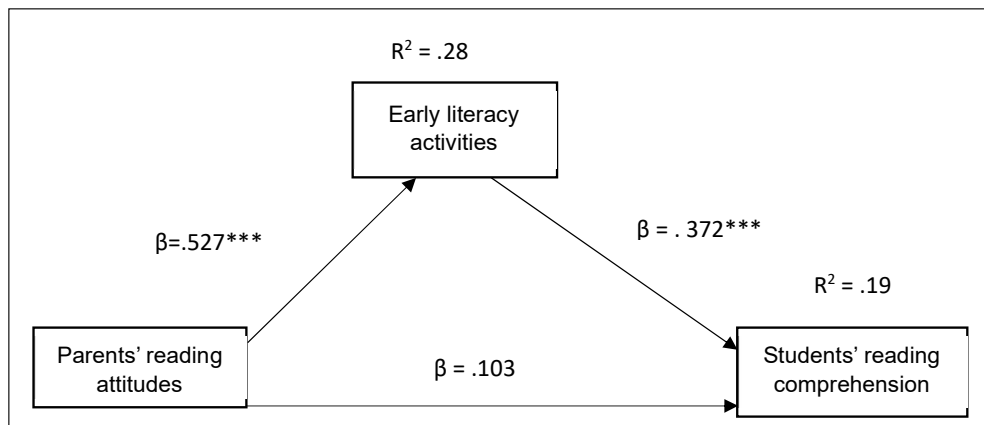


Figure 4: Schematic diagram of the final model

The direct effect of parents' reading attitudes on students' reading comprehension is not statistically significant, which is ($\beta = .103$, $CR = 1.6485$, $p = 0.099$). Meanwhile, the indirect effect ($\beta = .372 \times \beta = .572$) and direct effect ($\beta = .30$) are statistically significant. Since both direct and indirect paths are significant, early literacy activities have a full mediating effect on the relationship within parents' reading attitude and students' reading comprehension as shown on the schematic diagram in Figure 4. In other words, parents' attitudes towards reading can influence students' reading comprehension if early literacy activities are conducted at home. This finding proves that early literacy activities can improve students' reading comprehension.

5. Discussion

The analysis results in the structural model show that parents' reading attitude is a significant determinant of early literacy activities ($\beta = .527$, $p < .00$); however, it is not significant for students' reading comprehension ($\beta = .103$, $p = .099$). The relationship within parents' attitudes towards reading and early literacy activities reflects the practices and involvement of parents in engaging their children in early literacy activities at home prior to formal schooling. Manolitsis, *et al.* (2013) discovered that parents' attitudes toward reading are positively correlated with the quality and quantity of early literacy activities completed at home. Parents who hold positive behaviours towards reading are more prone to engage in literacy activities with their children (Yarosz & Barnett, 2001), demonstrating the crucial parental role in cultivating reading habits among their children. These findings also align with previous research by Alramamneh, *et al.*, (2023) which indicates that parents' attitudes towards reading have a moderately positive correlation with early literacy engagements activities ($r = .33$, $p < .01$).

Additionally, the finding indicates there is a significant direct influence from early literacy activities on students' reading comprehension. This finding proves that early literacy activities can improve students' reading comprehension. The finding aligns with a prior longitudinal study by Silinskas *et al.* (2020) in Finland, that investigated the relationship between early

home literacy activities, children's reading skills, and interest from kindergarten until grade two. They found that early literacy activities carried out by parents predict students' reading achievement at the end of first grade. Similarly, Lehl *et al.* (2020) examined the impact of early numeracy and literacy activities at home on student's reading and mathematics skills in Germany. Their longitudinal study, spanning from early schooling to middle school years, revealed that different early activity experiences predict different literacy and numeracy competencies, suggesting potential long-term effects. These studies demonstrate the significance of early parental involvement in numeracy and literacy activities at home, as they significantly impact children's academic development throughout their schooling years.

Mediation analysis shows that early literacy activities play a full mediating role on the relationship within parents' reading attitude and students' reading comprehension. This indicates that parents' reading attitudes can influence students' reading comprehension through the implementation of early literacy activities at home. These findings corroborate previous studies (Skibbe *et al.*, 2008; Al Jefri & Areepattamannil, 2019; Hassunah-Arafat, *et al.*, 2021; Alramamneh, *et al.*, 2023) which demonstrate that parents with more positive attitudes towards reading participate in literacy-related activities more frequently with their children. Thus, through parents' reading attitudes, students receive early literacy exposure at home, potentially leading to better reading comprehension abilities. Therefore, parents with positive attitudes towards reading provide strong encouragement to involve with their children in early literacy activities, thereby contributing to enhance their children reading comprehension.

The full mediating effect of early literacy activities demonstrates the vital impact of parents' attitudes and practices in their children's early literacy activities. By understanding this mediating role, stakeholders in education involving education policymakers, school administrators, and teachers can empower parents to create home environments that promote early literacy more effectively. In addition, the findings prove that the parents are the most significant figures in children's education because parents who like to read tend to spread this attitude to their children. The early literacy activities provided by parents may depend on parents' reading attitudes; and subsequently influence students' reading comprehension.

6. Implications of study

This study emphasises the mediating role of early literacy activities in the relationship between parental reading attitudes and students' reading comprehension. Data from 393 Year Five students and their parents in Kelantan, Malaysia, indicate that while positive parental reading attitudes significantly encourage early literacy activities, this factor alone does not directly impact students' reading comprehension. Instead, early literacy activities act as the essential link, enhancing comprehension skills by fostering positive parental attitudes. These findings highlight the value of cultivating a home environment that prioritises early literacy activities, shaped by supportive parental attitudes toward reading. Thus, educational initiatives should focus on promoting positive parental attitudes to strengthen early literacy foundations, ultimately boosting children's reading comprehension.

This study provides insights into students' literacy proficiency that align with the Primary School Literacy and Numeracy Program (PLaN). PLaN is one of the initiatives outlined in the Malaysian Education Development Plan (PPPM 2013-2025) that emphasises the importance of engaging various stakeholders including parents, teachers, and school administrators who have close relationships with students. The PLaN programme outlines one of the six steps to enhance students' literacy mastery, which is through the implementation of awareness campaigns targeted at parents. Therefore, education policymakers need to allocate attention

and resources to the development and implementation of structured and effective awareness programs regarding the importance of literacy proficiency for parents. Furthermore, the school community especially teachers need to emphasise the role of parents in providing a learning environment to their children at home.

Additionally, parents should educate that their attitudes towards reading and involvement in literacy activities before children begin formal schooling can influence children's reading performance at the elementary school level. Parents should also be informed that mastery of reading comprehension is a fundamental life skill impacting students' cognitive development, academic achievement, and future job prospects. Thus, the essence of parental awareness campaigns should involve practical guidance that parents can implement to actively participate in early literacy activities at home with their children.

7. Limitations and suggestion for further study

Although this study adds to the existing literature on students' reading comprehension, it does have limitations. This study involved a population and sample of fifth-grade students aged 11 years in government primary schools. Since the study sample represents a specific group with certain characteristics suitable for their age, the findings do not represent the entire population of primary school students. Future studies may consider testing the same model on groups of students at different ages, such as third-grade students aged nine years, to allow for generalisation of findings across different age groups and their validation. This study involved data collection only in the state of Kelantan, thus the possibility of examining the same research model in different state locations in Malaysia could be considered for future studies. The study results provide positive indications for further research to explore larger populations and provide more accurate generalisations.

8. Conclusion

This study has successfully added empirical results on the influence and impact of home learning setting towards students' academic performance. This study demonstrates the importance of parents or caretaker in providing home learning environments since early childhood that might show a long-term influence on students' achievement. Hence, empowering parents to realise the importance of early literacy activities at home is a vital phase to nurture their children reading comprehension.

References

- Alramamneh, Y., Saqr, S., & Areepattamannil, S. 2023. Investigating the relationship between parental attitudes toward reading, early literacy activities, and reading literacy in Arabic among Emirati children. *Large-scale Assessments in Education*, 11(1): 1–23. <https://doi.org/10.1186/s40536-023-00187-3>
- Anders, Y., Rossbach, H.-G., Weinert, S., Ebert, S., Kuger, S., Lehl, S., & Von Maurice, J. 2012. Home and preschool learning environments and their relations to the development of early numeracy skills. *Early childhood research quarterly*, 27(2): 231–244. <https://doi.org/10.1016/j.ecresq.2011.08.003>
- Awang, Z. 2012. A handbook on structural equation modeling using AMOS. *Universiti Teknologi MARA Press, Malaysia*, 83–102.

- Baker, L. & Scher, D. 2002. Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading psychology*, 23(4): 239–269. <https://doi.org/10.1080/713775283>
- Bigozzi, L., Vettori, G., & Incognito, O. 2023. The role of preschoolers' home literacy environment and emergent literacy skills on later reading and writing skills in primary school: A mediational model. *Frontiers in Psychology*, 14(3): 1–9. <https://doi.org/10.3389/fpsyg.2023.1113822>
- Cochran, W.G. 1977. *Sampling techniques*. New York: John Wiley & Sons.
- Dong, Y., Wu, S.X.-Y., Dong, W.-Y., & Tang, Y. 2020. The effects of home literacy environment on children's reading comprehension development: A meta-analysis. *Educational Sciences: Theory and Practice*, 20(2): 63–82. <https://doi.org/10.12738/jestp.2020.2.005>
- Elleman, A.M. & Oslund, E.L. 2019. Reading comprehension research: Implications for practice and policy. *Policy Insights from the Behavioral and Brain Sciences*, 6(1): 3–11. <https://doi.org/10.1177/2372732218816339>
- Elliott, L., Zheng, P., & Libertus, M. 2021. Individual Differences in Parental Support for Numeracy and Literacy in Early Childhood. *Education Sciences*, 11(9): 541. <https://doi.org/10.3390/educsci11090541>
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. 2019. *Multivariate Data Analysis*. 8th edn. Cengage Learning.
- Hashim, N.H., Abdul Aziz, A.R., Yahaya, A.S., Mohamed, A.R., Othman, H., Ramly, I., Ahmad, M.Z., Yaakub, R., Hashim, S., Nair, S., & Che Lah, Y. 2006. Tahap Kefahaman Bacaan Bahasa Melayu Murid Sekolah Rendah. *Monograf Penyelidikan. Pusat Pengajian Pendidikan Ilmu Pendidikan, Pulau Pinang: Universiti Sains Malaysia*. [Preprint].
- Hassunah-Arafat, S.M., Aram, D., & Korat, O. 2021. Early literacy in Arabic: The role of SES, home literacy environment, mothers' early literacy beliefs and estimation of their children's literacy skills. *Reading and Writing*, 34(10): 2603–2625. <https://doi.org/10.1007/s11145-021-10158-1>
- Hulme, C. & Snowling, M.J. 2013. Learning to read: What we know and what we need to understand better. *Child Development Perspectives*, 7(1): 1–5. <https://doi.org/10.1111/cdep.12005>
- IEA. 2016. PIRLS 2016 Student questionnaire. *Boston*, 1–28. <https://timssandpirls.bc.edu/pirls2016/questionnaires/index.html>
- Al Jefri, H.M. & Areepattamannil, S. 2019. Examining the relations of early literacy activities and skills to reading dispositions, engagement, and achievement among fourth-grade students in the United Arab Emirates. *Social Psychology of Education*, 22(4): 901–920. <https://doi.org/10.1007/s11218-019-09504-7>
- Kendeou, P., McMaster, K.L., & Christ, T.J. 2016. Reading comprehension: Core components and processes. *Policy Insights from the Behavioral and Brain Sciences*, 3(1): 62–69. <https://doi.org/10.1177/2372732215624707>
- Lehrl, S., Ebert, S., Blaurock, S., Rossbach, H.-G., & Weinert, S. 2020. Long-term and domain-specific relations between the early years home learning environment and students' academic outcomes in secondary school. *School Effectiveness and School Improvement*, 31(1): 102–124. <https://doi.org/10.1080/09243453.2019.1618346>

- Li, M., Koh, P.W., Geva, E., Joshi, R.M., & Chen, X. 2020. The componential model of reading in bilingual learners. *Journal of Educational Psychology* [Preprint], (January). <https://doi.org/10.1037/edu0000459>
- Lubliner, S. 2002. The Power of Clarifying: A Comparative Analysis of Strategies that Strengthen Comprehension. Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 1-5. in *Annual Meeting of the American Educational Research Association*. <https://files.eric.ed.gov/fulltext/ED466691.pdf>
- Manolitsis, G., Georgiou, G.K., & Parrila, R. 2011. Revisiting the home literacy model of reading development in an orthographically consistent language. *Learning and Instruction*, 21(4): 496–505. <https://doi.org/10.1016/j.learninstruc.2010.06.005>
- Manolitsis, G., Georgiou, G.K., & Tziraki, N. 2013. Examining the effects of home literacy and numeracy environment on early reading and math acquisition. *Early Childhood Research Quarterly*, 28(4): 692–703. <https://doi.org/10.1016/j.ecresq.2013.01.002>
- Mullis, I.V.S., von Davier, M., Foy, P., Fishbein, B., Reynolds, K.A., & Wry, E. 2023. PIRLS 2021 International Results in Reading. Boston College, TIMSS & PIRLS International Study Center. <https://pirls2021.org/wp-content/uploads/2022/files/PIRLS-2021-International-Results-in-Reading.pdf>. <https://doi.org/10.6017/lse.tpisc.tr2103.kb5342>
- Mullis, I.V.S. & Martin, M.O. 2019. *PIRLS 2021 Assessment Frameworks*. ERIC. <https://pirls2021.org/frameworks/home/reading-assessment-framework/overview/index.html>
- Nadia, R.P. & Delliana, S. 2020. Peran Komunikasi antara Guru dan Murid dalam Membangun Minat Belajar di Komunitas Jendela Jakarta. *Jurnal Komunikasi*, 14(1): 83–94. <https://doi.org/10.21107/ilkom.v14i1.7019>
- Niklas, F. & Schneider, W. 2017. Home learning environment and development of child competencies from kindergarten until the end of elementary school. *Contemporary Educational Psychology*, 49: 263–274. <https://doi.org/10.1016/j.cedpsych.2017.03.006>
- Niklas, F., Wirth, A., Guffler, S., Drescher, N., & Ehmgig, S.C. 2020. The home literacy environment as a mediator between parental attitudes toward shared reading and children's linguistic competencies. *Frontiers in Psychology*, 11(July): 1–10. <https://doi.org/10.3389/fpsyg.2020.01628>
- Noble, C., Sala, G., Peter, M., Lingwood, J., Rowland, C., Gobet, F., & Pine, J. 2019. The impact of shared book reading on children's language skills: A meta-analysis. *Educational Research Review*, 28: 100290. <https://doi.org/10.1016/j.edurev.2019.100290>
- Oakhill, J. 2020. Four Decades of research into children's reading comprehension: A personal review. *Discourse Processes*, 57(5–6): 402–419. <https://doi.org/10.1080/0163853X.2020.1740875>
- OECD. 2019. Malaysia- Country Note- Pisa 2018 Result. Paris: *Oecd*, I–III: 1–10. <https://doi.org/10.1787/5f07c754-en>
- Ramirez, G., Fries, L., Gunderson, E., Schaeffer, M.W., Maloney, E.A., Beilock, S.L., & Levine, S.C. 2019. Reading anxiety: An early affective impediment to children's success in reading. *Journal of Cognition and Development*, 20(1): 15–34. <https://doi.org/10.1080/15248372.2018.1526175>
- Relyea, J.E., Zhang, J., Liu, Y., & Lopez Wui, M.G. 2020. Contribution of home language and literacy environment to english reading comprehension for emergent bilinguals: Sequential mediation model analyses. *Reading Research Quarterly*, 55(3): 473–492. <https://doi.org/10.1002/rrq.288>

- Roth, F.P., Speece, D.L., & Cooper, D.H. 2002. A longitudinal analysis of the connection between oral language and early reading. *The Journal of Educational Research* 59(5): 259-272 <https://doi.org/10.1080/00220670209596600>
- Salkind, N.J. 2018. *Exploring Research*. Pearson. <https://www.pearsonhighered.com/assets/preface/0/1/3/4/0134238419.pdf>
- Sénéchal, M. & LeFevre, J.A. 2002. Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development*, 73(2): 445-460. <https://doi.org/10.1111/1467-8624.00417>
- Shanahan, T. & Lonigan, C.J. 2010. The National Early Literacy Panel: A summary of the process and the report. *Educational researcher*, 39(4): 279-285. <https://doi.org/10.3102/0013189X10369172>
- Silinskas, G., Sénéchal, M., Torppa, M., & Lerkkanen, M.-K. 2020. Home literacy activities and children's reading skills, independent reading, and interest in literacy activities from kindergarten to grade 2. *Frontiers in Psychology*, 11: 1508. <https://doi.org/10.3389/fpsyg.2020.01508>
- Singh, S. & Mishra, S. 2013. *A Study on Role of Multimedia in Early Childhood Education*. LAP LAMBERT Academic Publishing. <https://www.perlego.com/book/3312660/a-study-on-role-of-multimedia-in-early-childhood-education-pdf>
- Skibbe, L.E., Justice, L.M., Zucker, T.A., & McGinty, A.S. 2008. Relations among maternal literacy beliefs, home literacy practices, and the emergent literacy skills of preschoolers with specific language impairment. *Early Education and Development*, 19(1): 68-88. <https://doi.org/10.1080/10409280701839015>
- Smith, R., Snow, P., Serry, T., & Hammond, L. 2021. The role of background knowledge in reading comprehension: A critical review. *Reading Psychology*, 42(3): 214-240. <https://doi.org/10.1080/02702711.2021.1888348>
- Van Steensel, R. 2006. Relations between socio-cultural factors, the home literacy environment and children's literacy development in the first years of primary education. *Journal of Research in Reading*, 29(4): 367-382. <https://doi.org/10.1111/j.1467-9817.2006.00301.x>
- Stephenson, K.A., Parrila, R.K., Georgiou, G.K., & Kirby, J.R. 2008. Effects of home literacy, parents' beliefs, and children's task-focused behavior on emergent literacy and word reading skills. *Scientific Studies of Reading*, 12(1): 24-50. <https://doi.org/10.1080/10888430701746864>
- Susperreguy, M.I., Douglas, H., Xu, C., Molina-Rojas, N., & LeFevre, J.-A. 2020. Expanding the Home Numeracy Model to Chilean children: Relations among parental expectations, attitudes, activities, and children's mathematical outcomes. *Early Childhood Research Quarterly*, 50: 16-28. <https://doi.org/10.1016/j.ecresq.2019.09.003>
- Torppa, M., Poikkeus, A.-M., Laakso, M.-L., Tolvanen, A., Leskinen, E., Leppanen, P.H.T., Puolakanaho, A., & Lyytinen, H. 2007. Modeling the early paths of phonological awareness and factors supporting its development in children with and without familial risk of dyslexia. *Scientific Studies of Reading*, 11(2): 73-103. <https://doi.org/10.1080/10888430709336554>
- Yarosz, D.J. & Barnett, W.S. 2001. Who reads to young children?: Identifying predictors of family reading activities. *Reading Psychology*, 22(1): 67-81. <https://doi.org/10.1080/02702710151130235>