

# THE MEDIATING ROLE OF PRESCHOOLERS' READING ATTITUDE ON THE RELATIONSHIP BETWEEN PHYSICAL LITERACY ENVIRONMENT AND ENGLISH PHONOLOGICAL AWARENESS AMONG PRIVATE PRESCHOOLERS IN JOHOR

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## ABSTRACT

This study examined 374 Malaysian parent-child dyads to explore the mediating role of preschoolers' reading attitude on the relationship between physical literacy environment and English phonological awareness. Parents provided demographic information and completed a Physical Literacy Environment and Literacy Activities Questionnaire, while children were administered a Phonological Awareness Test and Elementary Reading Attitude Survey. The data were analysed with descriptive statistics and Structural Equation Modelling. Result from the study revealed that there is no relationship between physical literacy environment and reading attitude. Additionally, reading attitude is not the mediator between physical literacy environment and English phonological awareness. These findings suggest that while the physical literacy environment alone may not strongly influence phonological awareness, its impact can be enhanced when combined with factors like parental involvement and effective utilization of resources at home. Parents should be mindful of maintaining an enriching physical literacy environment, including accessible reading materials, appropriate reading spaces, and organized storage for literacy resources.

**Keywords:** physical literacy environment, reading attitude, children's English phonological awareness

## INTRODUCTION

### Physical Literacy Activities

The relationship between physical literacy activities, reading attitude, and English phonological awareness has been a subject of discussion in the field of educational and developmental psychology. Physical literacy environment refers to literacy materials, for example, story books and newspapers; literacy equipment, such as television and computer; literacy language environment (Dong et al., 2020) and literacy resources (Curenton & Justice, 2008) available in the home for children's literacy development. According to Saracho (1997), physical environments can improve children's competence in print capability. The physical

literacy environment supplied by the parents, such as the number of all types of books and how many children's books, were both positively related to the quality of shared reading between a mother and her children, regardless matter when parents began reading to their children (Marjanovič-Umek et al., 2017).

### **Learning Environment and Reading Skills**

Disadvantaged parents with low qualifications were well-represented in the family literacy provision (Swain & Cara, 2017). Hofslundsengen et al. (2018) perceived that the phonological capabilities of children are related to the provision of an early literacy environment. Majid (2018) stated that the availability of books of the children's interest, books with more pictures, and books available at home are the primary motivating factors claimed by the children. Most home literacy environments benefit from providing specific ideas and materials (Hoyt, 2021). The researchers observed that children's reading comprehension could be effectively influenced by home literacy resources only when the available resources are used adequately in literacy activities (Dong et al., 2020). The home reading environment predicted children's current and year-end phonological awareness (Ergül et al., 2019). Robeck & Wallace (2018) further pointed out the visitation of the local library, ensuring the children are always available for a diverse selection of reading materials, including newspapers and magazines, and providing a good study area at home as the tips for parents to work with children in promoting reading skills.

Ng et al. (2020), claimed that parents are aware that to promote their children's reading development on top of the efforts made at school, they need to begin strengthening their children's reading skills at home. Swain & Cara (2017) claimed that many parents were starting to realize that the children's reading development opportunities were not limited to the school. Children can learn proper English in school through well-trained teachers; nonetheless, parents can only partially rely on the school to be responsible for their language acquisition. Young children spend much time with their primary caregivers at home, and they tend to feel more secure when they are at home. Children's enthusiasm and motivation in reading-related activities are linked to their emergent literacy skills (Buvaneswari & Padakannaya, 2017).

### **Reading Attitude and English Phonological Awareness**

Recent research conducted by various experts stated that reading attitude could lead to the acquisition or rejection of positive reading habits where children's reading has a significant indirect effect on their word reading (Wang and Liu 2021). Research has consistently shown that children's attitudes towards reading are closely linked to their reading achievement and motivation (Tisa, et al. 2021). Children's interest and motivation in engaging in literacy-related activities are closely associated with their emergent literacy skills (Buvaneswari and Padakannaya 2017). Positive reading attitudes have been found to contribute to higher reading achievement, as children who enjoy reading are more likely to engage in reading activities, which in turn enhances their reading skills (McGeown et al. 2015). Dewi and Prawita (2019) stated that it is apparent that children wish to become more engrossed in reading activities which will boost their reading interest. Hence, in order to be able to read better, children should have a strong reading interest and motivation. Children who enjoyed reading had higher reading proficiency and were more likely to have positive attitudes towards reading. In addition, parents played an important role in encouraging children to read, with parental involvement positively impacting children's reading habits (Sun et al. 2020).

According to the International Literacy Association (2020), phonological awareness is a multilayered oral language skill that is often characterized by the phonological structure of uttered words in addition to the meaning carried by each word. Syllabic (words, syllabus) and sub syllabic units are phonological (linguistic) units (onsets and rimes, phonemes). Typically, children who can manipulate sound units in primary language are expected to be able to do it in the second language acquisition, if the children can detect second language sounds correctly (Goodrich et al. 2019).

Reading attitude and phonological awareness abilities strongly associate with preschool children's reading competencies, while phonological awareness abilities correlate with children's reading attitude toward academics (Wood and Gabas 2017; Buvanewari and Padakannaya 2017). International Literacy Association (2020) assured that with a sufficient level of phoneme-level awareness, children could understand how print develops and then implement phonics lessons provided by the teachers. There were subsequently few studies on phonological awareness conducted in Malaysia (Sinnadurai 2018; Alhumsi and Shabdin 2018; Anthony and Said 2019; Sapi'ee and Tan 2020; Winskel 2020) but the studies were not focused on English phonological awareness among preschoolers who enrolled in private preschools in a bigger scale.

Parents' responsibility in developing children's reading habit and interest is closely related to providing a rich physical literacy environment, such as reading books (Kamunge, 2018). Reading attitude, reading interest, and reading motivation is proven to be related to each other which have similar nature and contribute to children's development (Wiescholak et al. 2017; Carroll et al. 2019).

Understanding the relationship between physical literacy environments, preschooler's reading attitudes and phonological awareness is crucial for educators and parents who seek to promote reading success in children. By providing supportive home physical literacy environment and giving opportunities for phonological awareness development, children are more likely to become confident and proficient readers, laying a foundation for future academic success. Therefore, this research aiming to study on the following:

1. To identify the level of private preschoolers' English phonological awareness.
2. To examine the influence of private preschoolers' physical literacy environment on them English phonological awareness.
3. To investigate the mediating effect of private preschoolers' reading attitude on the relationship between physical literacy activities and English phonological awareness.

## **METHODOLOGY**

### **Study Design**

The current study is quantitative research that uses a survey design with a non-experimental correlational design. The purpose of the study is to examine the relationship between the physical literacy environment and preschoolers' English phonological awareness level, which is mediated by the preschoolers' reading attitude. The study will be conducted in the Johor district and will use a cross-sectional, self-administered questionnaire to gather data from parents and preschoolers.

## **Instruments**

Parental demographic characteristics of the home were assessed by a total of 3 items of basic information, which are: the relationship of the respondent to the child, age of the respondent, and usual language spoken at home. The parents must answer all 3 items to gain basic information about the respondents.

The Physical Literacy Environment Questionnaire was adapted and modified from Home Literacy Environment Questionnaire developed by Buvanewari and Padakannaya (2017) in the research Development of a Home Literacy Environment Questionnaire for Tamil-speaking Kindergarten Children. Physical literacy environment is the sub-section in the Home Literacy Environment Questionnaire. This sub-section pertains to the materials used for reading and writing in the respondent's house. The items focus on the materials available at home that the parents have prepared for the children, such as "toys that teach colour, shapes, sizes." There are a total of 7 items in this part. Respondents are required to indicate the frequency with which they use these materials with their children. To measure the frequency of use, a 5-points Likert scale is employed, where the respondents select a number from 1 to 5, representing "Never" to "Very Often". Higher scores on the scale indicate that the respondents provide a broader range of physical literacy materials at home. This set of items aims to capture the extent to which parents engage their children in literacy-related activities using various educational materials, providing valuable insights into the home literacy environment's impact on the development of phonological awareness and reading attitudes in preschoolers.

The Phonological Awareness Test used in this survey is adapted and adopted from PAT by Robertson and Salter (1997), The Comprehensive Test of Phonological Processes (CTOPP) by Wagner, Torgesen and Rashotte (1999), and the Pre-Literacy Skills Screening (PLSS) by Crumrine and Lonegan (1999). The test consists of 7 parts, with a total number of 50 items. The researcher will read out the instruction to the children. The children will answer each sub-item, and every correct answer will be given one score. The answers are then analysed according to scores obtained from each part and as total scores obtained for each sub-item. The total marks of this instrument are 50. The higher the score, the stronger the phonological awareness of the child.

The ERAS developed by McKenna and Kear in the year 1990 provides a rapid indicator of student attitudes toward reading. The ERAS score is based on a Likert scale with a 4-point pictorial response system. Each item is assigned 1 to 4 points with a '1' indicating the Very Upset Garfield, '2' the Mildly Upset Garfield, '3' the 'Slightly Smiling Garfield, and '4' the Happiest Garfield. Three scores will be gained for each student; (1) the total for the first ten items related to recreational reading attitude, the total for the second 10 items related to academic reading attitude, and the composite total, which indicate the overall reading attitude. The researcher only focuses on the academic reading subscale as the researcher only interested in the children's academic reading which is item 11 to 20 in the original instrument. The ERAS will be administered individually after the children answer the Phonological Awareness Test. The administration of the Phonological Awareness Test and Elementary Reading Attitude Survey will conduct together with the individual child in the preschool classroom. Every child who participated in the survey will be rewarded with a storybook.

## **Participants**

Population means the entire group of individuals, events, or items of interest that the researcher desires to explore (Chua 2012). In order to obtain information on the phonological awareness level of the preschoolers, the study targeted all private preschoolers in Johor, Malaysia. First, a cluster sampling method was employed, where the accessible population was clustered into 11 District Education Offices (*Pejabat Pendidikan Daerah, PPD*), based on the division of district departments from the State Education Office, Johor (*Jabatan Pendidikan Negeri Johor*). According to Krejcie and Morgan (1970), for a significance level of  $p=0.05$ , the minimum number of respondents required for this study is 377 six-year-old private preschool children. The 377 pairs of student-parent dyads will be selected from 11 District Education Offices using the quota-stratified random sampling method. The samples will be chosen from each preschool based on the number of preschoolers registered in each respective preschool. The respondents will consist of the preschoolers and their respective parents (either father or mother). Thus, there will be a total of 377 parent-child dyads for data analysis. However, 3 samples were removed after the validation and reliability test. Hence, there are a total number of 374 parent-child dyads for data analysis.

## **Analysis of Data**

The data will be quantitatively analysed using SPSS version 21 software and Smart PLS 2. This study aimed to investigate the relationship between physical literacy environment (independent variable), reading attitude (mediating variable), and English phonological awareness (dependent variable). Data first demonstrate in descriptive statistics to show the basic information on the levels of the variables. Next, inferential statistics in Bivariate Correlation Analysis (Pearson Product-Moment Coefficient) will be employed to show the relationship between variables. Structural equation modeling (SEM) procedures with SmartPLS will be employed to examine the mediating effect of the variables.

## **RESULTS**

As illustrated in Table 1, the total number of mother respondents (84.8%,  $n=317$ ) is much higher than the number of father respondents (15.2%,  $n=57$ ). The majority of the respondents are in the age range of 31-40 years old, which is 228 respondents (61.0%). Besides, 88.2% of the respondents speaks Mandarin at home.

According to Table 2, the average score for Physical literacy environment is 3.55, with a standard deviation of 0.85, indicating that the children in this group have medium-level of parent-child interaction in language and literacy activities, with a relatively small spread in their scores. In terms of English Phonological Awareness, the mean score is 28.51 with a larger standard deviation of 13.42, suggesting a medium level of phonological awareness, but with a wider range of individual performance among the children.

Table 3 shows the frequency table according to each range of score of reading attitude indicators. The majority (63.64%) of the participants, consisting of 238 individuals, are extremely happy to be engaged, while 106 participants (28.34%) are slightly happy to be engaged. A smaller proportion, 27 participants (7.22%), are slightly unhappy to be engaged, and only 3 individuals (0.8%) are extremely unhappy to be engaged. Overall, the majority of

the group demonstrates a positive attitude towards engagement, with over 90% of participants expressing some degree of happiness.

Table 1

*Profiles of Respondents According to Demographic Characteristics (N=374)*

Variables	Frequency	Percentage (%)
<u>Relationship</u>		
Mother	317	84.8
Father	57	15.2
<u>Parent's Age</u>		
Below 18	3	0.8
19-30 years old	57	15.2
31-40 years old	228	61.0
41-50 years old	79	21.1
51-60 years old	7	1.9
<u>Usual language</u>		
Mandarin	230	88.2
Malay language	25	6.7
English	15	4.0
Other	4	1.1

Table 2

*Mean, Standard Deviation and the Level of Physical Literacy Environment and English Phonological Awareness (N=374)*

Dimension	Mean	Standard Deviation	Level
Physical Literacy Environment	3.55	.85	Medium
English phonological awareness	28.51	13.42	Medium

Table 3

*Frequency Table according to Each Range of Score of Reading Attitude Indicators (N=374)*

Range of Score	Interpretation	n	%
21-24	Extremely happy to be engaged	238	63.64%
16-20	Slightly happy to be engaged	106	28.34%
11-15	Slightly unhappy to be engaged	27	7.22%
6-10	Extremely unhappy to be engaged	3	0.8%
Total		374	100

Note: M=20.78, S.D. =3.21

The data presented in Table 4 shows Pearson correlation coefficients and significance values (two-tailed) for the relationships between three variables: PA (Phonological Awareness), PLE (Physical Literacy Environment), and RA (Reading Attitude). There is a significant positive correlation between PA and PLE ( $r = .252$ ,  $p < .001$ ,  $N = 374$ ). The

correlation value indicates a positive and very weak correlation coefficient. This means that when parents provide an excellent physical literacy environment for the children, the children's English phonological awareness will increase slowly. Similarly, there is a significant positive correlation between PA and RA ( $r = .167$ ,  $p = .001$ ,  $N = 374$ ), suggesting that higher phonological awareness is associated with better reading attitude. Based on the result shown in Table 4.35, there is no statistically significant positive correlation ( $r=.075$ ,  $p>.05$ ) between the physical literacy environment and reading attitude. This means that children's reading attitude is not influenced by the physical literacy environment provided by the parents.

Table 4

*Pearson Correlation among Physical Literacy Environment, English Phonological Awareness and Reading Attitude*

		PA	PLE	RA
PA	Pearson Correlation	1	.252**	.167**
	Sig. (2-tailed)		.000	.001
	N	374	374	374
RA	Pearson Correlation	.167**	.075	1
	Sig. (2-tailed)	.001	.149	
	N	374	374	374

Note: \*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

Key: PA=English Phonological Awareness, PLE=Physical Literacy Environment, RA=reading attitude

By referring to Table 5, SEM analysis with Smart PLS shows that t-statistics values for individual path physical literacy environment towards reading attitude ( $\beta=.079$ ,  $t=1.398$ ,  $p>0.05$ ) is smaller than 1.96, which means the paths were not statistically significant. Only the t-statistics value for individual path physical literacy environment towards English phonological awareness ( $\beta=.254$ ,  $t=5.571$ ,  $p=.000$ ) and reading attitude towards English phonological awareness ( $\beta=.168$ ,  $t=3.811$ ,  $p=.000$ ) is greater than 1.96, which means is statistically significant.  $R^2$  for English phonological awareness is 0.099, the effect size is small (Cohen, 1988) which means that 9.9% of private preschoolers' English phonological awareness is due to reading attitude and parents' literacy habits.

According to Table 5, no significant mediating effect of reading attitude on the relationship between the physical literacy environment and English phonological awareness ( $\beta=.013$ ,  $t=1.205$ ,  $p>0.05$ ). As a result, private preschoolers' reading attitude does not mediate the relationship between the physical literacy environment and English phonological awareness. Private preschoolers' reading attitude is not a factor that will influence by the physical literacy environment and subsequently affect their English phonological awareness.

Table 5

*Mediating Effect Analysis of Reading Attitude on the Relationship between Physical literacy environment and English Phonological Awareness*

	Beta	Standard Deviation	T Statistics	P Values	R <sup>2</sup>	Result
PLE -> RA a	0.079	0.057	1.398	0.162	0.006	not significant
RA -> PA b	0.168	0.044	3.811	0.000	0.099	Significant
PLE -> PA c'	0.254	0.046	5.571	0.000	0.099	Significant
PLE -> RA -> PA a x b	0.013	0.011	1.205	0.228		not Significant

Key: PLE = Physical Literacy Environment; RA = Reading Attitude; PA = English Phonological Awareness

Figure 1 demonstrates the mediating effect model of reading attitude on the relationship between the physical literacy environment and English phonological awareness. The path coefficients of each of the individual path is shown in the figure 1.

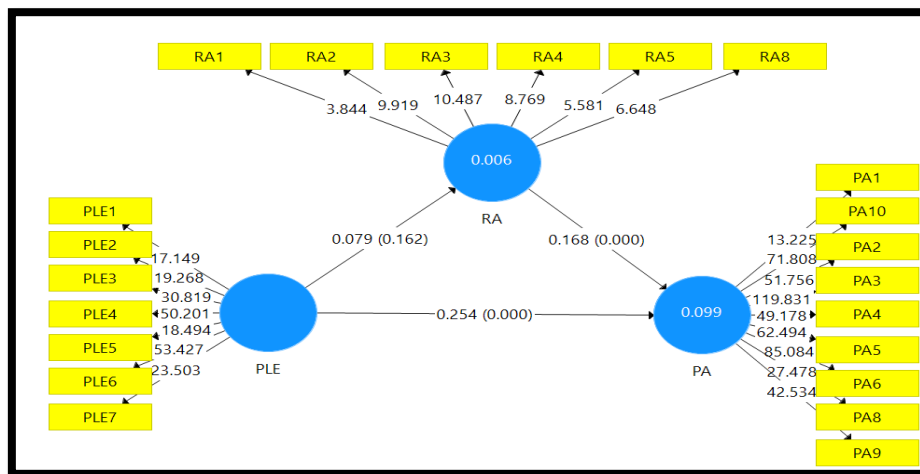


Figure 1. SEM Of the Mediating Effect Of Preschoolers' Reading Attitude On The Relationship Between Physical Literacy Environment and English Phonological Awareness

## DISCUSSION AND IMPLICATIONS

Private preschoolers' physical literacy environment and English phonological awareness level is determined to be at a moderate level. This suggests that opportunities for children to engage in literacy activities are present, though the environment may not provide highly supportive



conditions. This could mean that while parents often prepare toys and books to teach concepts like names of animals, vehicles, and fruits, and designated spaces for books and toys are available at home, the provision of sufficient resources such as books, toys, and puzzles remains somewhat unsatisfactory.

Majid (2018) echoes the importance of providing books aligned with children's interests and featuring ample pictures as motivational factors. Locally, Ahmad et al. (2017) found that parental involvement in creating a learning environment at home is high. Nonetheless, while a medium level of physical literacy environment might not be optimal, it still offers some benefits for children's literacy development, and improvements can be made by increasing resources and opportunities for physical activities. It should also be broadened to encompass tangible objects from the real world that can support and be used for developing early literacy abilities. Especially in the post-pandemic era, the provision of technological devices has become essential. While there are potential drawbacks associated with the misuse of electronic devices, effective parental supervision can enable children to harness the benefits of technology for their literacy development. Creating a moderate level of physical literacy environment doesn't need big or fancy changes. Instead, it's about setting things up carefully so that there are lots of chances to use books, learning stuff, and educational toys. The idea is to make a place that makes the children to feel curious, helps them explore, and makes them like reading and learning. Caretakers play a crucial role in providing necessary resources to support children's learning and development. Early exposure to a conducive physical literacy environment is closely connected to children's phonological abilities (Hofslundsengen et al., 2018).

The research findings revealed a positive yet weak correlation between the physical literacy environment and English phonological awareness. The weak relationship suggests that the physical literacy environment in which a child is raised has a limited impact on their development of phonological awareness skills in the English language. This emphasizes the importance for parents to ensure adequate and suitable physical literacy resources to enhance their children's language skills. Pearson's bivariate correlation analysis revealed no significant correlation between the physical literacy environment and reading attitude. While books and a variety of reading materials may be expected to foster reading interest among children, scholars also argue that books alone might not be effective if children are not inclined to read them. However, despite the findings of the current research not aligning with these patterns, it is important to consider the potential impact of the COVID-19 pandemic. The data collection for this study was conducted during the COVID-19 pandemic, which had a global impact starting in 2020. Alsubaie (2022) observed a decrease in the learning materials provided at home before and during the pandemic, indicating that the pandemic might have influenced the home literacy environment. Weinstein (2021) emphasized the need for more research into the adjustment of the learning environment to online platforms and its impact on children's social, emotional, and academic development. Understanding that technology and digital learning activities at home can positively influence children's reading attitude and motivation (Ohi, 2018) is crucial for parents.

Though the connection between the physical literacy environment and reading attitude is deemed insignificant, a significant relationship is observed between the physical literacy environment and English phonological awareness. A mediation analysis through Structural Equation Modelling (SEM) has yielded results indicating that reading attitude does not serve as a predictor of the association between the physical literacy environment and English phonological awareness among private preschoolers. This finding implies that the presence of reading materials at home and its impact on literacy development is not contingent on a child's

attitude towards reading. Put differently, even if a child maintains a positive attitude towards reading, the availability of reading materials at home directly influences their literacy development, without necessitating their attitude to function as a mediating factor. Nonetheless, it's noteworthy that a child's reading attitude can still play a role in their overall reading engagement and motivation, thereby contributing to their literacy development.

Nevertheless, experts assert that promoting children's reading interest and attitude with the available home resources necessitates encouraging collaborative learning activities. This approach entails engaging children with captivating and appealing books (Marin & Bocoş, 2021). However, potentially due to the global impact of the COVID-19 pandemic, a shift towards virtual learning and remote work has surfaced, resulting in increased screen time for both children and adults. Research indicates a rise in children consuming various formats of reading materials on screens compared to traditional paper formats, likely influenced by prolonged lockdown measures (Clark & Picton, 2021).

Material support encompasses home resources like interactive books, appropriate display areas for books, and technological reading aids. Furthermore, insufficient reading materials have been identified as a deterrent to cultivating young children's reading habits. In addition to enhancing home reading resources, parental care and encouragement play a vital role in motivating children to embrace reading. Consequently, it is imperative for parents to contemplate how they can enrich their home literacy environments to bolster their children's language and literacy development, making a noteworthy contribution to future research endeavours.

The research findings contribute to the body of knowledge on literacy development by emphasizing the interplay between physical literacy environment, reading attitude, and phonological awareness. Parents can understand their role played in enhancing their children's English language development. There is significantly less the school can do to change the home environment in which the parents are the party who play an active role. Therefore, after knowing the challenges, the children might face when looking into the home environment that the children experience, the school can provide extra assistance for the children in the school context to fill in the gap that the children are facing to achieve better reading outcomes. Furthermore, this study is a reference for the policymakers to plan to create awareness for the caretakers of the importance of their roles in their children's development. Policymakers, such as local authorities and town councils, can design campaigns and organize events and expert talks for the parents to participate in with their children.

There are a handful of limitations when conducting this research. The pandemic, which attacked worldwide, restricted the data collection method throughout the data collection period, from physical to virtual. Hence, it is suggested that further in-depth investigation be done fully face-to-face with the children and the parents in order to obtain more genuine responses. Apart from that, due to logistical constraints, this study is focusing on the northernmost state of Malaysia, Johor. Therefore, the results of the study only represent the population of Johor and would not be able to be generalised as a whole. As a result of this, future studies can extend the research coverage to different parts of the country, as the lifestyles and cultures of different states might vary. Acknowledging that multiple indicators contribute to a child's reading outcomes beyond phonological awareness, future studies should explore additional reading skills like print awareness and vocabulary, investigating their interplay with the physical learning environment. Moreover, forthcoming investigations should examine the mediating influence of other variables, including peer influence, parental reading attitude, preschool type,

and primary language used at home. This holistic approach unveils the extent to which mediators explicate the interrelation between the physical literacy environment and English phonological awareness.

## CONCLUSION

In conclusion, private preschoolers in Johor demonstrated a statistically significant, yet weak, positive connection between the physical literacy environment and English phonological awareness. These findings suggest that while the physical literacy environment alone may not strongly influence phonological awareness, its impact can be enhanced when combined with factors like parental involvement and effective utilization of resources at home. Parents should be mindful of maintaining an enriching physical literacy environment, including accessible reading materials, appropriate reading spaces, and organized storage for literacy resources. No significant relationship was detected between the physical literacy environment and preschoolers' reading attitude in this study. The provision of reading materials and the literacy environment at home may not have a substantial impact on preschoolers' reading attitude. This study showed that reading attitude does not mediate the connection between the physical literacy environment and English phonological awareness among private preschoolers in Johor. Since reading attitude exerts no influence on the relationship between the physical literacy environment and English phonological awareness, it becomes evident that preschoolers' English phonological awareness skills are directly influenced by the physical literacy environment, irrespective of their attitudes towards reading. Another significant implication of this study lies in its potential for preschools to employ the findings to guide parents, particularly those whose preschoolers encounter challenges in language and literacy skills. Preschools, as environments that bring together children of the same age group under a uniform curriculum, hold the ideal setting for identifying challenges. Teachers' influences significantly affect their reading attitudes (Webster, 2022). While schools possess limited capacity to transform home environments, parents play an active role therein. Recognizing the challenges faced by children in their home environments enables schools to provide extra assistance within the school context, bridging gaps for improved reading outcomes.

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