

THE EFFECTS OF PROMOTING READING ON CHILDREN'S EDUCATION OUTCOMES: A CASE STUDY OF PUBLIC KINDERGARTENS IN YUNLIN COUNTY, TAIWAN

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ABSTRACT

This study explores the educational effects of promoting reading at public kindergartens in Yunlin County, Taiwan. The research subjects were the teachers and parents of upper-kindergarten students (5-6 years old) from 10 public kindergartens in Yunlin County, to which 400 questionnaires were distributed; 322 valid questionnaires were collected for analysis. Data analysis was conducted using a linear regression model and a multilayer perceptron (MLP) neural network model. The study found that the total amount of reading was a factor affecting "reading habits", "language proficiency," "comprehension abilities", "independent reading proficiency", "conscious behavior", and "reading interest". This study's results and recommendations can serve as reference for professionals in preschool and kindergarten education.

Keywords: reading habits, language proficiency, comprehension abilities, independent reading proficiency, conscious behavior, reading interest.

1. Introduction

Learning and development of reading abilities must be accompanied by interest and a positive attitude. Children with interest in and a positive attitude towards reading are at an advantage in developing good reading habits, and taking advantage of opportunities to develop good reading abilities requires good habits. In preschool, reading provides an opportunity for children to enjoy listening to stories, as well as to express their thoughts and feelings. At the same time, it raises their language ability, thus indicating the importance of developing intimate reading habits from infancy.

Researchers have explained that through reading, children can improve not only their language proficiency, but also their reading interest, reading volume, and reading level (Bogner, Raphael, & Pressley, 2002; Guthrie et al., 2004). Through reading activities, children can also engage in conscious study and meet the requirements of the modern era. Hence, activities that promote reading at a preschool and kindergarten level and increase children's reading volume and develop their reading interest and ability constitute the primary subject of discussion in this study, in which we discuss whether children's overall reading volume is the most effective factor for developing their reading habits, language proficiency, comprehension ability, conscious behavior, and reading interest.

In summary of the above, this researcher's intention is to investigate whether activities that promote reading have a positive impact on children's reading interest, reading habits, and language proficiency, et cetera. The researcher also hopes to understand whether this effect is statistically significant, provide results and suggestions for pre-school educational professionals to consult, as well as provide recommendations for future research.

This study used the effects of reading volumes in investigating Yunlin county public kindergartens. We hope that this study can provide useful reference for preschool education professionals and parents, helping them to understand reading promotion effects. This paper will discuss the following:

- (1) Understanding the effects of activities that promote children's reading habits, language proficiency, comprehension ability, independent reading ability, conscious behaviors, and reading interest.
- (2) Using this study's analyses and results, we will provide research results for consultation by kindergartens and parents.

2. Literature Review and Hypotheses

2.1 Literature related to reading habits

Good reading habits can improve children's attentiveness in studying, their vocabulary, and even their linguistic abilities to express themselves. Developing good reading habits also helps children in their future elementary school studies and provides a basis for effective childhood learning.

According to the International Reading Association's (IRA) reports, the most effective form of reading is the "condition of at-home reading"; if adults enjoy reading at home, and the home has plenty of books, children are frequently exposed to books from an early age and can thus establish good reading habits. In summary of the results of the abovementioned literature, we can see that an abundant reading volume can promote good reading habits in children, from which we infer hypothesis 1.

H1: Children's reading volume has a significant positive effect on their reading habits.

2.2 Literature related to language proficiency

From infancy, children “officially” enter a system of language proficiency and societal communication; for children, the study of language includes speaking, symbolic, image based, and textual functions.

Wells’ (1985) research suggests that if parents read to their children before they reach school age, it can not only facilitate children’s language development, but also inspire their interest in spoken and written language. Children’s reading volume has a significant effect on their reading speed, fluency, vocabulary, development of general knowledge, ability to apply language, and educational success (Anderson, Wilson, & Fielding, 1988; Cunningham & Stanovich, 1998). According to the conclusions of the abovementioned literature, we can see that children’s overall reading volume can affect their language abilities; using these conclusions, this study proposes hypothesis 2.

H2: Overall reading volume has a significant positive effect on children’s language ability.

2.3 Literature related to comprehension ability

Comprehension is a complex cognitive activity and the most important component of the cognitive process of reading. In the cognitive process of reading, reading comprehension and text decoding are the two most important component processes. Van den Broek et al.’s study (2005) discovered that childhood reasoning and comprehension abilities can predict adult reading comprehension abilities. This predictive power exceeds the language basics such as definitions of words, vocabulary, and phonological sense abilities.

Children’s at-home reading volume, volume of adult-books at home, and involving children in storytelling activities are aspects of children’s at-home reading environment that can predict their comprehension abilities.

The results of the above literature show that providing children with an abundant amount of reading can affect their comprehension ability development. Thus, this study proposes hypothesis 3.

H3: Overall reading volume has a significant positive effect on children’s comprehension ability.

2.4 Literature related to independent reading ability

Independent reading has always been considered an important indicator of reading development. When children begin learning how to read, they depend on adults for help, first forming a picture, and gradually complete understanding. By telling stories to children, adults can use listening, reading, speaking, and questioning methods while leading children in interactions, thus arousing children’s interest and lively discussions. This easily allows children to vicariously understand the experiences and lives of others. In this way, children can gradually understand the books’ plots and language, progressively improving their reading interest activities, finally developing independent reading abilities. Research also shows that children’s increased reading frequency is indicative of their growing reading interest; increases in reading frequency can also signal improving reading abilities.

The above discussion shows that encouraging young children to read can simultaneously promote their independent reading ability. More specifically, children’s reading volume increase can improve their vocabulary, reading speed, and academic achievement. Thus, this study proposes hypothesis 4.

H4: Reading volume has a positive significant effect on children’s independent reading ability.

2.5 Literature related to conscious ability

Henninger (2009) showed that picture books can be used to guide children to recognize emotions. Moreover, picture books are commonly used in Taiwan to discuss various emotions. As children's books tend to include vibrant and lively characters with content that resembles children's experiences in a colorful way, these books can easily attract children's attention, which can help develop their interest in discussing emotions that are difficult to understand.

Reading picture books can also help children resolve questions about emotions, in addition to allowing children understand their own feelings. It can also provide interesting stories for children, who naturally lack life experiences, to vicariously experience different living conditions. Moreover, the books help them understand their own emotions, as well as how to relieve and express their feelings. Representations of emotions within picture books allow children to see visual representations of abstract emotions, thus improving their understanding of emotions, improving their mood, and enhancing their comprehension ability.

The above analysis shows that promoting reading gives children increased contact with picture books. Through the characters within these books, children can learn to understand their own and others' feelings, and to adjust their emotional reactions; this thus affects their conscious ability. Thus, this study proposes hypothesis 5.

H5: Overall reading volume has a significant positive effect on children's conscious ability.

2.6 Literature related to reading interest

"Reading interest" refers to the reader's enjoyment of books, magazines, et cetera that they read, and their deep attraction towards, motivation for, and enjoyment of reading; reading interest can help also help readers develop long-lasting reading habits. A survey by the Hsin Yi Foundation (1990) noted how children's reading habits are closely related to those of their mother: if a mother reads daily, their child will read frequently. These children will also begin reading comparatively early and will visit bookstores and libraries significantly more often. The number of children's books in the home reveals the mother and child's daily reading attitude, which has a positive effect in actively encouraging children to read. In summary, allowing children to have greater contact with books can inspire their reading interest; thus, we propose hypothesis 6.

H6: Overall reading volume has a significant positive effect on children's reading interest.

3. Research Design and Methods

3.1 Research structure

To investigate the independent variable's effect (i.e., overall reading volume) on the 6 factors of the child's "reading habits", "language proficiency", "comprehension abilities", "independent reading proficiency", "conscious behavior", and "reading interest", we use the correlation between the independent and the dependent variables to study how activities promoting reading affect academic success.

3.2 Research participants and survey

3.2.1 Participants

The main research participants for this study are the parents of upper kindergarten students and teachers of 10 municipal public kindergartens from Yunlin County, Taiwan, who were the participants for our surveys for analysis of the changes in reading habits, language proficiency, comprehension abilities, independent reading ability, conscious behaviors, and reading interest after the promotion of reading.

3.2.2 Sampling method

The questionnaires were completed between July 2 and August 1, 2015, during which 358 of 400 questionnaires were collected. Requirements for valid surveys were the subject's correct and complete response to the survey; thus, only 322 valid questionnaires were retrieved, along with 36 invalid questionnaires. After deducting invalid or systematically completed questionnaires, 322 remained. Retrieval rate was therefore 80.5%, indicating a "very good" suitability for questionnaire retrieval rate.

3.3 Research design and methods

This study's deductive analysis uses children's overall volume of reading as an independent variable, and children's reading habits, language proficiency, comprehension abilities, independent reading proficiency, conscious behavior, and reading interest as dependent variables. Questionnaires were distributed, which comprised of 3 main components. Rating academic success comprised 30 questions, rated on a 5-point Likert scale. Participants could select one response based on their level of agreement, where "strongly agree," "agree," "neutral," "disagree," and "strongly disagree" respectively corresponded to 5, 4, 3, 2, and 1. The fourth part of the survey requested basic personal information, where parents and teachers responded to 12 questions on gender, age, educational level, years of service, profession, number of children, number of story books at-home, time spent accompanying children daily, average weekly time spent telling stories to children, experience in participating in parent-child reading, child's overall volume of reading, and types of story-books preferred by the child.

After collecting the questionnaires, we first inspected and sorted the material, removing any incomplete surveys or surveys that were completed with essentially the same response. After this, the data was encoded and collated; with the help of Statistica 8 software, this data was used to test our research hypotheses according to the goals of our study.

3.4 Multilayer perceptron (MLP) neural network model

The multilayer perceptron (MLP) neural network model was developed from operation models on biological neural conduction systems (Principe, Euliano, & Lefebvre, 2000). In order to manage the nonlinear relationship between input and output variables, a feed-forward neural network and supervised learning techniques were employed to correct improperly weighted variables by using hidden layers. In this manner, a model with relatively good predictive ability was constructed, currently the most important MLP neural network, and with a wide range of applications (Ye, 2009).

The MLP model has 3 layers. Firstly, the input layer shows network input variables, with the number of neurons in the input layer determining the dimensions of the input feature. In this study, the input layer has only one variable. Secondly, the hidden layer is the most important component of the MLP model, and is used to represent interactions between neurons in the input layer; in this study, the hidden layer has 2 neurons. Finally, the output layer is used to represent output variables; the number of neurons in this layer is determined by questions and in this study, the output layer includes 6 variables.

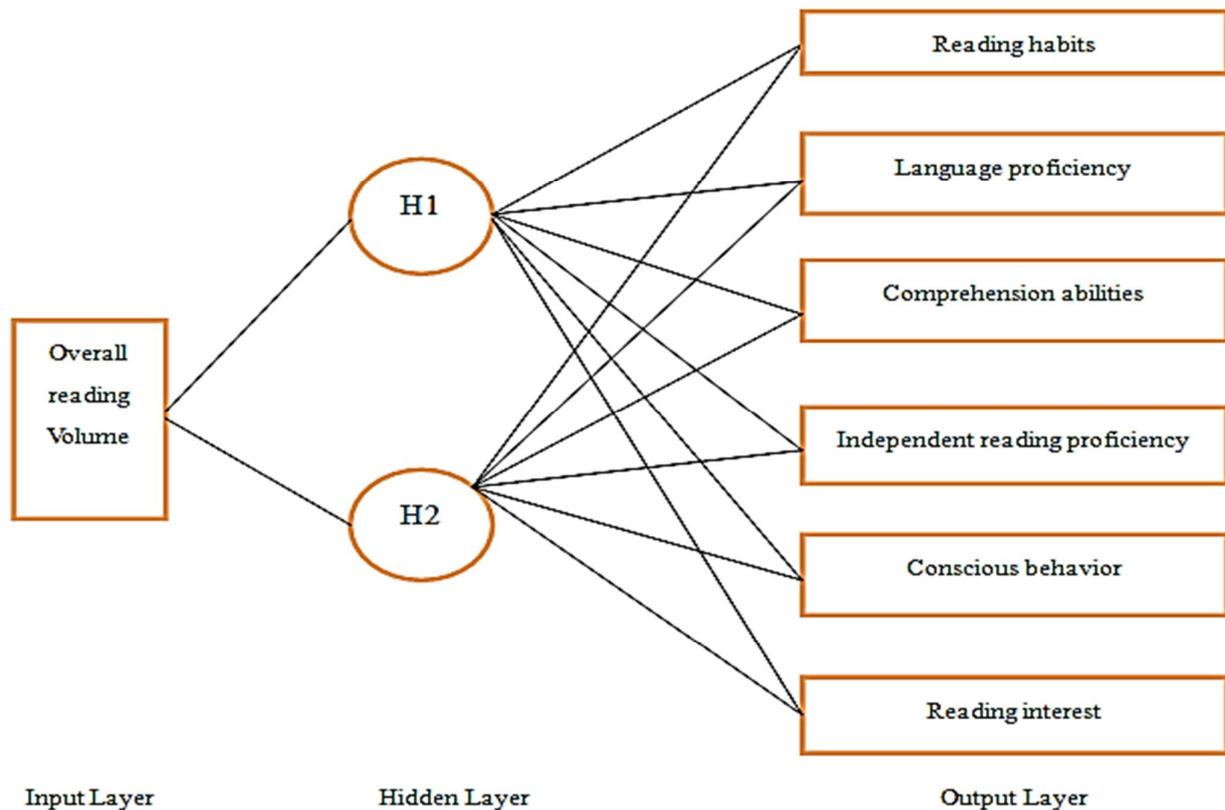


Figure 1: Neural network diagram

4. Empirical Results and Analysis

4.1 Research regression model analysis

Table 1: Regression analysis on impacts of independent variables to overall volume of reading

Variables	Parameter	Beta	t (p)	F (p)	R ²	Adjusted R ²
Reading habits	0.011	0.343	6.534 (0.000)	42.692 (0.000)	0.117	0.115
Language proficiency	0.011	0.342	6.545 (0.000)	42.447 (0.000)	0.117	0.114
Comprehension abilities	0.011	0.346	6.618 (0.000)	43.798 (0.000)	0.120	0.117
Independent reading proficiency	0.011	0.343	6.539 (0.000)	42.760 (0.000)	0.118	0.115
Conscious behavior	0.011	0.339	6.445 (0.000)	41.542 (0.000)	0.115	0.112
Reading interest	0.010	0.342	6.519 (0.000)	42.494 (0.000)	0.117	0.114

We can see from the results of our analysis that the effect of the independent variable “overall volume of reading” on the dependent variable “reading habits” has an F value of 42.692, $P=0.00 (<0.05)$, and that overall reading volume does indeed affect children’s reading habits. The overall model R^2 value (multiple R^2) is 0.117, and the adjusted R^2 is 0.115. The independent variable explained 11.7% of reading habits. According to the above analysis, we can verify H1: “A child’s reading volume has a significant positive effect on reading habits” as $y_1=0.343x_1$, where y_1 is the dependent variable reading habits and x_1 is overall reading volume.

The results of our analysis show that the effect of the independent variable “overall volume of reading” on the dependent variable “language proficiency” has an F value of 42.447, $P=0.00 (<0.05)$, and that overall reading volume does indeed affect children’s language proficiency. The overall model R^2 value (multiple R^2) is 0.117, and the adjusted R^2 is 0.114. The independent variable explained 11.7% of language proficiency. According to the above analysis, we can verify H2 “Children’s reading volume has a significant positive effect on language proficiency” as $y_2=0.342x_2$, where y_2 is the dependent variable language proficiency, and x_2 is overall reading volume.

Our analysis shows that the effect of the independent variable “overall volume of reading” on the dependent variable “comprehension ability” has an F value of 43.798, $P=0.00 (<0.05)$, and that overall volume of reading does indeed affect children’s comprehension ability. The overall model R^2 value (multiple R^2) is 0.120, and the adjusted R^2 is 0.117. The independent variable explained 12% of comprehension ability. According to the above analysis, we can verify H3 “Children’s reading volume has a significant positive effect on comprehension ability” as $y_3=0.346x_3$, where y_3 is the dependent variable comprehension ability, and x_3 is overall reading volume.

The results of our analysis show that the effect of the independent variable “overall volume of reading” on the dependent variable “independent reading ability” has an F value of 42.760, $P=0.00 (<0.05)$, and that overall volume of reading does indeed affect children’s independent reading ability. The overall model R^2

value (multiple R^2) is 0.118, and the adjusted R^2 is 0.115. The independent variable explained 11.8% of independent reading ability. According to the above analysis, we can verify H4 “Children’s reading volume has a significant positive effect on independent reading ability” as $y_4=0.343x_4$, where y_4 is the dependent variable independent reading ability, and x_4 is overall reading volume.

Our analysis reveals that the effect of the independent variable “overall volume of reading” on the dependent variable “conscious ability” has an F value of 41.542, $P=0.00 (<0.05)$, and that overall reading volume does indeed affect children’s conscious ability. The overall model R^2 value (multiple R^2) is 0.115, and the adjusted R^2 is 0.112. The independent variable explained 11.5% of conscious ability. According to the above analysis, we can verify H3 “Children’s reading volume has a significant positive effect on conscious ability” as $y_5=0.339x_5$, where y_5 is the dependent variable conscious ability, and x_5 is overall reading volume.

Finally, the results show that the effect of the independent variable “overall volume of reading” on the dependent variable “reading interest” has an F value of 42.494, $P=0.00 (<0.05)$, and that overall volume of reading does indeed affect children’s reading interest. The overall model R^2 value (multiple R^2) is 0.117, and the adjusted R^2 is 0.114. The independent variable explained 11.7% of reading interest. According to the above analysis, we can verify H6: “Children’s reading volume has a significant positive effect on reading interest.” This is due to $y=0.342x_5$, where y_5 is the dependent variable reading interest, and x_5 is overall reading volume.

4.2 Neural network model analysis and sensitivity analysis

This study employed the Statistica 8 software suite to calculate and analyze the statistical results. These calculations yielded 5 models belonging to our MLP network, which we will now compare. The train error of pattern 2 is 0.776, test error=0.760, validation error=0.752; these are relatively small errors. For pattern three of our MLP network, train error = 0.780, test error = 0.758, validation error = 0.719. As the calculated weighted value of model three was comparatively reasonable, we have chosen model 3 to be this study’s test model.

Table 2: Neural network model

Index	Profile	Training Perf.	Test Perf.	Validation Perf.	Training Error	Test Error	Validation Error
1	MLP 1-2-6	0.101	0.269	0.172	0.775	0.761	0.730
2	MLP 1-2-6	0.100	0.255	0.170	0.776	0.760	0.725
3	MLP 1-2-6	0.100	0.260	0.170	0.780	0.758	0.719
4	MLP 1-2-6	0.111	0.237	0.182	0.774	0.762	0.719
5	MLP 1-6-6	0.100	0.268	0.170	0.775	0.759	0.725

In testing a model, uncertain risks must be addressed. We thus used sensitivity analysis to help reduce these risks. Sensitivity analysis uses the value placed on sensitivity to determine the importance of variables. When the sensitivity value is > 1 , it indicates that the variable is relatively important to the model. In our model, each variable had a sensitivity level greater than the benchmark value of 1, indicating that there is a significant causal relationship within the model.

Table 3: Sensitivity Analysis

Networks	Total amount of reading
1.MLP1-2-6	1.011
2.MLP1-2-6	1.011
3.MLP1-2-6	1.011
4.MLP1-2-6	1.013
5.MLP1-6-6	1.011
Average	1.012

4.3 Impact analysis of neural network links (weights)

A neural network is composed of neurons, output nodes, and input nodes. Weighing these aspects allows the nodes to be connected into a network structure.

This study uses the MLP model to analyze the validity of H1, and conducted a weighted analysis for reading volume's effect on reading habits. We calculated that the weighted value of this effect is -0.937, indicating an inverse relationship. Thus, H1 was not supported. This shows that children's overall volume of reading does not have a significant positive effect on their reading habits. Parents should therefore arrange a fixed time to read with their children, guiding them, and praising them when appropriate. This will lead children to look forward to reading with their parent; the activity will also become a part of daily life, thus gradually building strong reading habits in the child.

The MLP model was used to analyze the validity of H2, and to analyze the weighted effect of overall reading volume on language proficiency. We calculated the weighted value of this effect to be 0.086, indicating a positive correlation, thus supporting H2. This indicates that there was a significant and positive correlation between overall volume of reading and children's language proficiency. Both parents and teachers should encourage children to read, and allow for an appropriate amount of reading at pre-schooling age; this can support children's linguistic development, as well as helping to inspire their interest in the language.

The MLP model also analyzed the validity of H3, as we analyzed the weighted effect of overall reading on children's comprehension ability. Our calculations showed that this effect has a weight of -1.220, indicating an inverse correlation; thus, H3 was not supported. This shows that the overall volume of reading does not have a significant positive effect on children's comprehension ability. This may be because children between the ages of 3-6 are still too young; hence, they still require adult guidance to understand unfamiliar concepts and to develop their comprehension ability.

The MLP model was used to analyze the validity of H4, and thus analyzed the weighted effect of overall reading volume on independent reading ability. We calculated the weighted value of this effect to be 0.013, indicating a positive correlation, thus supporting H2. This indicates that there was a significant and positive correlation between overall volume of reading and children's independent reading ability. This also shows that activities where adults and children read together are necessary in promoting children's independent reading ability.

The MLP model was used to analyze the validity of H5, and to analyze the weighted effect of overall reading volume on conscious behavior. We calculated the weighted value of this effect to be -1.080, indicating an inverse correlation; thus, H5 was not supported. This indicates that there was not a significant

and positive correlation between overall volume of reading and children's conscious behavior. For this reason, we can determine that children are still heavily dependent on adults for guidance. One should first allow children to develop critical thinking skills, learn about their own and others' feelings, and learn to regulate their emotional reactions; after this, children can be facilitated to develop their conscious ability.

The MLP model was used to analyze the validity of H6, and to analyze the weighted effect of overall reading volume on reading interest. We calculated the weighted value of this effect to be -0.937 , indicating an inverse correlation; thus, H6 was not supported. This shows that there was not a significant and positive correlation between overall volume of reading and children's reading interest. For this reason, we can see that it is important to allow children to develop their interest, but in addition to the supervision of an adult and the provision of an appropriate environment for reading, it is even more important to determine how to make reading interesting for the child, as opposed to simply increasing the volume of reading material.

5. Conclusions and Recommendations

5.1 Discoveries

The aim of this study is to determine the effects of reading promotion activities on the studies of children at Yunlin County public kindergartens. In order to increase the rigor of the research process and the reliability of its results, we used both the neural network model analysis in addition to sensitivity analysis. After organizing the results of our analyses, we present the results of our hypotheses tests in the following table:

Table 4: Hypothesis validated results

Hypothesis	Result
H1: Children's reading volume has a significant positive effect on their reading habits.	Partially supported
H2: Overall reading volume has a significant positive effect on children's language ability.	Supported
H3: Overall reading volume has a significant positive effect on children's comprehension ability.	Partially supported
H4: Reading volume has a positive significant effect on children's independent reading ability.	Supported
H5: Overall reading volume has a significant positive effect on children's conscious ability.	Partially supported
H6: Overall reading volume has a significant positive effect on children's reading interest.	Partially supported

According to the results of our study, the independent variable has some effects on the proposed dependent variables. The effect of overall reading volume on the academic success related to "language proficiency" and "independent reading ability" was determined to be significant and positive, thus H2 and H4 were accepted. Among these, language proficiency's weighted value of 0.086 showed that this is the most heavily affected variable, indicating that overall reading volume does indeed help children develop listening, speaking, and reading vocabulary abilities. The effect on independent reading ability was assigned the weight 0.013 , indicating that if children read with their parents, they will gradually develop independent reading ability. The effects of overall reading volume on "reading habits", "comprehension ability", "conscious behavior", and "reading interest" were analyzed using regression analysis and were determined to exhibit significant positive correlation though our neural network MLP model analysis' results were negative and did not exhibit a significant effect. Thus, H1, H3, H5, and H6 were only partially supported.

The weighted value calculated for overall reading volume's effect on reading habits was -0.937 , a negative effect; this indicates that the overall reading volume does not have a large effect on children's reading habits. Clearly, other than reading itself, many other factors can also affect children's reading habits. There is currently an international emphasis on promoting childhood reading, to which Taiwan is no

exception; in line with these efforts, most current reading promotion activities are competitive in nature, with winners earning some sort of award, for example “Reading King”, “Elementary Reading Scholar”, and “Junior Reading Master.”¹ When these competitions end, children are less active in their motivation to read. In contrast to methods employed in countries like Japan, the United States, and the United Kingdom, where parents begin reading with their children before they are 10 months old, in Taiwan, most parents have no way of doing this. Thus, the development of good reading habits requires starting from an early age; parents should create a quiet and distraction-free reading area for their child, and set a time for the family to read together each day, with parents guiding the reading when necessary. It is most important that parents start this process and persevere through any challenges, as only then can the children develop solid reading habits. Thus, although this is a slow process, it can ensure reading become children’s lifelong habit.

The weighted value of overall reading volume’s effect on children’s comprehension ability is -1.220; this shows that overall reading volume does not have a large effect on comprehension ability, and that apart from the act of reading itself, there are many other factors affecting comprehension. For pre-school children between the ages of 3-6, comprehension abilities (e.g., definitions, vocabulary, and phonological capabilities) have not yet begun developing. At this early stage, parents should provide some assistance to help build their children’s comprehension. If a parent or teacher reads a book too quickly, children may not understand the story. If children are asked to explain the gist of the story after the story is finished, one can determine what the children do not understand and help them comprehend these areas. If a child gives an incomplete account, parents can fill in the blanks for them. Teachers can also use group discussions or role playing to help children understand stories, as well as using different teaching methods for different stories to lead children in reading; this allows children to improve their comprehension abilities as a group.

The weighted effect of overall reading volume on children’s conscious behavior is -1.080. This shows that overall reading volume does not have a very large effect on conscious behavior, and that in addition to reading, many other factors also affect their conscious behavior. Young children have yet to develop self-awareness, thus requiring parents to use rhetorical questions and reflective methods when teaching their children about emotions through picture books. In this way, children are given the opportunity to make correct judgments and considerations, through which they can develop emotionally. Parents should maintain a positive emotional environment at home, as this can foster familial harmony and establish positive parent-child relationships. Taking children to a children’s theatre to watch lively and colorful performances may also be beneficial; these activities readily attract children’s attention and can be very helpful to help them understand budding conscious behaviors.

The weighted effect of overall reading volume on children’s reading interest is -0.937. This shows that overall reading volume does not have a very large impact on a child’s reading interest, and that many factors other than reading can affect interest levels. From observing a kindergarten, it is clear that the “reading corner” is much less popular than the “puzzle corner” and the “play corner.” Teachers must learn how to make children feel that reading is a fun and relaxing activity. Furthermore, both parents and teachers must avoid selecting books according to their own preferences, which can indirectly influence children’s reading preferences. Pre-school age children tend to enjoy animal, adventure, and fantasy books. However, in addition to age appropriateness, one must also consider the child’s endurance, maturity, and comprehension when selecting books suitable to their developmental level; these points are crucial for developing children’s reading interest. Kindertgartens can use picture books as a pedagogical method to teach class topics, allowing children to have a deeper and more interesting experience. Furthermore,

extending the use of books to outdoor education can help children develop broad and diverse reading interests.

5.2 Recommendations

5.2.1 Recommendations for kindergartens

(1) Create calm and dynamic, lively and interesting reading environments

Kindergartens should design reading spaces based on children's needs, as well as including interesting patterns taken from picture books and bright colors. The visual plan of a reading space should attract children to read, and to become the favored class space for students and teachers.

(2) Encourage parents to attend parent-student reading clubs

Apart from establishing a close parent-child relationship, parents attending parent-child reading clubs can greatly boost children's academic abilities.

(3) Provide preschool teacher professional storytelling training

Storytelling training must be founded on deeper educational principles and promote the use of pedagogical strategies. These strategies may include how to optimize book selection and instructional design.

(4) Host "Parent-Child Reading Training" activities

Kindergartens should consider hiring lecturers to guide parents on child reading behavior, as well as help them select picture books appropriate to their children's development level and understand the importance of childhood reading. The explanation from a professional teacher can help parents to grasp tricks for providing their children with excellent reading experiences, which can promote children's motivation for reading.

5.2.2 Recommendations for teachers

(1) Enrich books in classroom "reading corners"

In establishing a warm and welcoming reading environment in the classroom, apart from having a good selection of books, children should be encouraged to bring their own storybooks that may be displayed in turn and shared with classmates. Children may also create their own story or picture to help them feel more involved and to develop an reading interest.

(2) Encourage children to share their reading

Children can be asked to take turns telling their classmates about a story they have read. Through sharing and discussing the book's content, children can develop a deeper understanding, as well as gain practice in public speaking. This not only provides an opportunity for children to become more comfortable with the vocabulary, but can also promote fluidity of speech and provide a format for improving language ability while simultaneously promoting self-confidence.

5.2.3. Recommendations for parents

(1) Create a welcoming reading environment

The home is a child's first reading environment; hence, parents should create an appropriate reading environment therein. Leading by example, by turning off electronics, and reading to the child in the one's arms or lap at fixed times every day can create intimate parent-child experiences, as well as fostering good reading habits for the children.

(2) Select high-quality books

In establishing an excellent reading environment, one must first have a good collection of books. In addition to buying new books, using book exchange activities and public libraries can help parents collect a variety of high-quality books.

(3) Parents can take their children to book fairs and bookstores, and allow them to select their favorite books. This can promote children's reading interest.

(4) Parents should attend more infant learning seminars to study methods for reading picture books to children, storytelling techniques, and other aspects of preschool reading.

5.2.4. Recommendations for further research

(1) Research subjects

Because of limited time and manpower, this study only conducted research on 10 public kindergartens in Yunlin County, Taiwan. Although the study can help improve our understanding of the effects of activities promoting reading in Yunlin County public kindergartens, the results cannot be applied to private kindergartens or those in other counties. Thus, we recommend that future researchers expand their research subjects to include all Taiwanese counties, as well as regional public and private kindergartens in order to expand the research's applicable scope.

(2) Research methods

This study used questionnaires to conduct its survey; the lack of in-depth interviews means that there are no deeper insights on their questionnaire responses. Thus, we recommend that future research are supplemented by qualitative research methods in order to collect deeper and more extensive data.

(3) Research variables

The main goal of this study was to explore the effects of activities promoting reading on children's educational outcomes. The study only used one independent variable, namely the child's overall volume of reading. We recommend that future researchers include additional variables (e.g., predictions of monthly book purchases, parent's academic backgrounds, and guidance of children's conscious behavior) in order to determine whether these factors affect children's learning outcomes.

References

1. Anderson, R. C., Wilson, P. T., & Fielding, L. G., 1988, Growth in reading and how children spend their time outside of school. *Reading Research Quarterly*, 285-303
2. Bogner, K., Raphael, L., & Pressley, M. , 2002, How grade 1 teachers motivate literate activity by their Students. *Scientific Studies of Reading*, Vol.6 (2), 135-165.
3. Cunningham, A. E., & Stanovich, K. E., 1998. What reading does for the mind. *American educator*, Vol. 22, 8-17.
4. Guthrie, J. T. , Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M.H., Scaffiddi, N. T., & Tonks, S.,2004, Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology*, Vol.96 (3), 403-423.
5. Henniger, M. L. 2009. *Teaching young children: An introduction* (4th edition). Upper Saddle River, NJ: Merrill/Pearson.
6. Hsin Yi Foundation, 1990. *Children reading's survey*. National Council for Cultural and Art conference.
7. Principe, J., Euliano, N. and Lefebvre, W, 2000. *Neural and Adaptive Systems: Fundamentals through Simulations*. John Wiley and Sons, New York.
8. Van den Broek, P., Kendeou, P., Kremer, K., Lynch, J., Butler, J., White, M. J., & Lorch, E. P, 2005. Assessment of comprehension abilities in young children. *Children's reading comprehension and assessment*, 107-130.
9. Wells, G., 1985. Preschool literacy-related activities and success in school, *Literacy, language, and learning*, 229-255.