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The Effectiveness of Interactive Reading Models in Improving Early Students Language Skills

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Abstract. This study aims to examine the effectiveness of interactive reading models in improving early childhood receptive and productive language skills. The interactive reading model used in this study consists of the traditional, the attention-focused, and the mind-map interactive reading models. This study used an experimental research method with a pre-posttest design. The sample in this study was 500 participants, with a composition of 150 people each in the traditional, focused attention, mind-map methods, with an age range of 4-6 years from 5 early childhood education schools. The results showed that the three interactive reading models had the same effect and there was no significant difference in the contribution of the three models. It was noted that the three interactive reading models significantly improve early childhood language skills. This improvement was noted in the child's receptive vocabulary, reading, storytelling and listening abilities. The strategies used in the interactive reading model pay attention to several aspects, including semantics and word repetition. The semantic aspect makes students motivated to classify meanings that make students able to gain a lot of new vocabulary mastery. This strategy is carried out in every vocabulary teaching. From the result, it was concluded that the three interactive reading models contribute significantly to reading ability. This implied that combining reading models in improving early childhood language skills is effective over the other strategies.

Keywords: interactive reading models; language skills; early students

1. Introduction

Language development in early childhood has a very big role in supporting the social life of children at school and within their families. Language in early childhood must be supported by parents and teachers so that its development is optimal. Some previous research shows that language development is very important and that children whose language development is less than optimal are

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often unable to get along with their friends (Villanueva, 2022; Wanzek et al., 2020). Early childhood language development is also a key element in determining a child's success in further education. Children who have good language skills tend to excel in reading and writing competence compared to children who lack language skills. This was proven in several previous studies, which showed that children with good reading skills had superior academic achievements compared to children with poor reading skills (Hadianto et al., 2022; Thompson & Melchior, 2020). Early childhood education is the right time to optimize children's language skills. The most effective method for improving children's language skills is optimizing their reading ability. It has been proven that children who have a habit of reading or are read to by their parents have better vocabulary knowledge than children who rarely read or are read to by their parents (Rianto, 2021; Timmons, 2019).

Language ability is a combination of several complex and multi-aspect abilities that make a person able to interact with other people. Language skills are built by other abilities, such as the ability to produce productive, receptive, listening, and storytelling vocabulary (Ives et al., 2020; Joseph et al., 2021). These abilities are closely related to reading ability. This has been proven by several previous studies. Reading ability makes a significant contribution to vocabulary knowledge because the intensity of reading various texts gives a new understanding of the meaning of vocabulary and sentences (Alvarenga et al., 2020; Beucher et al., 2020). In addition, other studies have proven that children who have more frequent reading habits are more skilled at speaking or communicating. Other research also proves that reading skills greatly contribute to listening skills (T. Gao et al., 2020). This happens because a broad vocabulary is able to listen to a more comprehensive conversation. Other research exploring the dialogic reading model with critical questioning techniques can improve productive vocabulary skills and storytelling abilities of early childhood.

Reading activities with children and their parents or with teachers are activities that are very important and beneficial for early childhood language development. Book reading activities can provide knowledge of new vocabulary, sentence structure, phonology of letters, and learn about the characters in the story. Book reading activities can also increase knowledge about situations, objects, places, problems, and feelings that are new or have never been experienced (Wanzek et al., 2020; Wood et al., 2021). The type of book that is most suitable or in accordance with the character of early childhood is a picture story book or other books that are equipped with pictures. Picture books are very helpful for children in understanding the storyline and messages conveyed in the book, because the combination of information and pictures will be more optimal in understanding the contents of the text or story. This is in line with the theory that a combination of text and images (verbal and visual) will make information or stories better remembered or understood by young children (C. Zhang et al., 2017; Zhao et al., 2019). In the context of early childhood education, interactive language learning is a very important component because the use of language is for interaction. The activity of reading books together is one of the most effective activities to improve children's language skills. Based on the research findings and theories cited above, this research seeks to explore the effectiveness of the three interactive reading

models (traditional, attention-focused, and mindmap) in improving early childhood language skills.

Through this research, researchers explore the effectiveness of traditional interactive reading models, focusing on attention, and mind-maps in improving early childhood language skills. The materials used in this study is a combination of text and pictures so that it is easily understood by early childhood. Researchers compared the effectiveness of the three interactive reading models from various aspects of language skills. Based on the explanation above, the researcher formulated the following research questions; 1) How effective is the traditional interactive reading models, focusing on attention, and mindmaps in improving early childhood language skills? 2) How does the effectiveness of the three interactive reading models compare?

2. Literature Review

2.1 Interactive reading model

Of the several existing reading models, the interactive reading model is the most familiar and effective in improving language skills. This interactive reading model is able to encourage children to provide responses to the stories they read. Interactive reading models usually use interactions, such as asking about content or asking children's opinions regarding the story or text content they have read (Kiuru et al., 2017; Lin & Zhang, 2021). The questions used in the interactive reading model are open-ended questions that provide opportunities for children to share their ideas or experiences related to the books they have read. Through dialogue that encourages children to actively speak, this model is able to improve children's language skills. Several previous studies examined interactive reading models by applying picture books to support children's language development at the next level (Paige et al., 2019; Piasta et al., 2018). An interactive reading model that is currently a new finding, is an interactive reading model using mind-maps. The mind-map in this reading model is used as an information organizer which can be in the form of a graph. This graph is used by readers to organize the information contained in the text so that the information obtained from reading is more comprehensive and systematic. This styler can use lines, arrows, and pictures.

An interactive reading model using mind-maps is very useful for connecting important concepts or components in a story or text. The presentation of this mind-map is done visually to make it clearer and easier to understand. Through this mind map, children are encouraged to be more active during the reading process (T. Gao et al., 2020; Kiuru et al., 2017). The use of mind maps in the reading process also contributes positively to learning outcomes. Students who use mind-maps know more about the contents of a text or book than students who do not use mind maps. This study proves that this graph organizer is also able to increase students' vocabulary knowledge. In addition, mind-maps in reading are also able to improve student learning outcomes and are more effective in improving students' reading comprehension skills (Kosasih et al., 2022; Otaiba, 2005; Rohayati et al., 2023). However, how can mind-maps be used for early childhood? Researchers have developed this mind-map so that it can be understood by young children. Of the four focus questions, questions regarding main problems and

solutions are the most difficult questions for children because they have to understand, connect story elements, and draw conclusions about story content (Joseph et al., 2021; Rianto, 2021). These four focus questions are proven to be able to make children focus on story content and understand the structure of the story comprehensively.

2.2 Early Students Literacy Development

Children have the potential to express what is in their minds and hearts through sound. The growth of sound will shape language. Language is speech about human thoughts and feelings using regular sound tools. With the development of language in children, it will make it easier for children to communicate and express what they want and feel to others, especially to peers (Eviatar et al., 2018; Faulk, 2018). Therefore, there is a need for teachers to understand the concept of language development in children. Furthermore, language development in children slowly shifts from making sound expressions to expressing by communicating, and from only communicating by using gestures to show their desires to developing communication through precise and clear speech (Rohayati et al., 2023; Sprugevica & Høien, 2003). Stages of child development that are expressed through thoughts and using words that indicate increased abilities and skills of children according to the stage of development. Based on some of the opinions above, it can be concluded that children's language development starts from infancy, which is based on experience, skills and progress in language. Language development is an effective medium for children to establish social communication. With the development of language in children, it will make it easier for children to express what they want and convey it to others (Lin & Zhang, 2021; Zhao et al., 2019). Therefore, language development for early childhood aims to make children able to communicate well.

Mastery of language is innate in all early childhood, regardless of culture and religion. This means that from birth to the age of 6, young children already have the ability to be literate. Although they do not learn specifically, children learn language through interaction with the environment in which the child lives (Q. Gao et al., 2022; Jung, 2019). Young children have literacy experience before they go to school and what they know about literacy is very important for their development. Children learn literacy for the first time from their respective homes through interactions with parents and in a fun way without intimidation. The description of a family environment and school environment that is conducive to stimulating children's literacy skills regarding reading and writing abilities (Hooper et al., 2020; Huennekens & Xu, 2016). Children's early literacy skills are a process of ability that begins at birth and continues to develop throughout their lifetime. Children learn literacy in amazing ways. Language mastery is innate in all children regardless of their culture and religion. Observing the descriptions and opinions of the experts above, it can be said that early childhood literacy is an ability possessed by children related to the ability to read and write (Cameron et al., 2019; Elek et al., 2022; Hannon et al., 2020).

3. Method

3.1 Research design and participant

This study used a quasi-experimental research method with pre and post-test designs in investigating the effectiveness of traditional interactive reading models, focused on attention, and mind-maps in improving children's language skills. This study used a quasi-experimental research method with pre and post-test designs. The sampling technique used is a random sample technique. The sample in this study was 500 participants with a composition of 150 each in the traditional, focused attention, mind-map method with an age range of 4-6 years from 5 early childhood education schools (M = 5.12, SD = 0.60), that were randomly selected from Indonesia. Two schools are from urban areas and three other schools are from rural areas. The characteristics of participants in this study is shown in detail in table 1.

Table 1. Research samples for each reading model

Reading Model			Gender	
Interactive reading model	N	Mean age (SD)	Boys	Girls
Traditional	500	6.75 (0.54)	250 (50.0%)	250 (50.0%)
Focused Attention	500	6.58 (0.61)	240 (48.0%)	260 (52.0%)
Mindmap	500	7.63 (0.56)	240 (48.0%)	260 (52.0%)

3.2 Ethical Considerations

Before the research was carried out, this research involved teachers who agreed to participate and young children who had received approval from their parents. After all parties involved in the research gave their consent, the researcher conveyed the procedures and objectives of the research. All participants involved in this study have expressed consent to be involved voluntarily. Parents and children are given the freedom to stop during the research process (no one resigned). In addition, to maintain research ethics, all research samples in this study were processed anonymously and the data was only used to reveal research objectives. Names of schools, teachers, and children are not published as part of research ethics considerations.

3.3 Intervention Procedure

In this study, researchers used picture books because the sample was young children. This book was read three times in a period of two weeks. The three interactive reading models are applied alternately to children under the guidance of the teacher. Traditional interactive reading models, focused attention, and mind-maps are carried out with the following activity details. The traditional interactive reading model emphasizes asking questions before, during and after reading books. During the process of reading activities, this reading model is very interactive, children can ask questions whenever they don't understand or respond. At the beginning of the book reading activity, asking questions focuses on predicting the contents of the story to be read. In the second stage, the teacher instructs children to focus on words that are difficult to understand during reading activities and children must be encouraged to ask about important concepts. In the last stage, the teacher asks the child's opinion about the characters

in the story or asks for responses to the child's feelings about the contents of the story.

In the focused attention interactive reading model, the teacher provides focus questions in each session before the reading activity is carried out. Before the reading activity, the teacher asks questions so that the child focuses on the questions. At the beginning of the reading activity, the teacher instructs the children to focus on questions the book being read asks. Next, the child is asked questions about the place or location. The child focuses on the question where the place or location of the story takes place. Finally, the teacher focuses on two questions, namely what the book raises the main problem and what the solution is. In the mind-map interactive reading model, the teacher uses the questions used in the focused attention interactive reading model. In addition, after reading the first book, the teacher makes a mind-map to show the main components or important concepts in the story. Furthermore, in the second reading activity, students and teachers together make branches of the main component. In the third reading activity, students add more detailed or more detailed problems from the previous branch or are called problem and solution branches. The interactive book reading activities of the three models during the intervention are described in table 2.

Table 2. Detailed activities of the interactive reading model in each session

Interactive reading model	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Traditional	Pre-test	The reading model focuses on the predictive ability of story content	The reading model focuses on students' comprehension abilities	The reading model focuses on students' feelings toward stories	–	Post-tests
Focused Attention	Pre-tests	A reading model by focusing on questions: What/who ?	The reading model uses the following questions: Where did the story take place?	The reading model focuses on the following questions: What are the main problems raised and what are the solutions?	–	Post-tests

Mind-map	Pre-tests	The reading model uses questions to branch out concepts or important points in the story	The reading model uses next queries to create 'next branches'	The reading model uses a questioning strategy to create 'problem branches' and 'solutions' on the mindmap	–	Post-tests

3.4 Research Instruments and Data Gathering

Aspects of language skills that are measured include productive vocabulary, receptive vocabulary, listening skills, and children's storytelling skills. All of these aspects are measured to determine the effectiveness of the three interactive reading models in improving language skills. To measure productive vocabulary, researchers used vocabulary evaluation tests based on certain themes. This vocabulary assessment was developed by researchers by adopting from (Wood et al., 2021). This test is carried out individually by asking for an explanation of the meaning of each vocabulary orally. At the time of the test, if the child is not clear about giving an answer, the assessor asks for a re-explanation by repeating questions or other questions that encourage the child to provide an explanation. Examples of questions asking for clarification include, have you ever heard or read this word? What do you think it means? This test is carried out for 15 minutes. The maximum point for each question is one point. The total vocabulary test is 15 words so that the range of scores the child gets is 0-15 points. Reliability and validity tests were carried out to check the feasibility of this instrument. Based on the results of the reliability test, the value of Cronbach's Alpha = 0.57 at the pre-test and the value of Cronbach's Alpha = 0.70 for the post-test. Based on the results of this assessment, this receptive vocabulary measurement instrument is feasible to use.

To measure receptive vocabulary, researchers used image vocabulary text from (Price-Mohr & Price, 2017; Sutter et al., 2020). This test uses a picture book with a total of 200 items that can be used to measure receptive vocabulary skills. In this study, children's receptive vocabulary was tested individually. An example of the test is that the teacher mentions the vocabulary and then gives instructions to the child to show the picture that matches the word mentioned. The choice of pictures is 5 pictures for each item of vocabulary questions. Examples of teacher instructions, i.e. Which picture shows a laughing person? Students are given a choice of pictures of people doing activities such as crying, drinking, being shocked, jumping, and laughing. The time used for this test is 15 minutes. The score processing of the receptive vocabulary assessment is taken from the raw score, which is calculated using the standard word comprehension division using the normative score. The instrument used to measure children's receptive

vocabulary skills has gone through reliability and normative tests. The results show good internal consistency with an average Lambda-2 Guttman coefficient of 0.95 in children aged 3–6 years.

To measure children's listening skills, researchers used the pre-school critical listening subscale adapted from (Paige et al., 2019; Sprugevica & Høien, 2003). The listening ability test or critical listening is a standardized test used to assess language skills in early childhood. This test consists of several sub-scales. This listening test consists of two types, namely the first test which consists of 50 items which are used for children aged 3-5 years, while the second type test consists of 63 items which are used for children aged 5-7 years. In this study, the researcher adapted the test model by randomly selecting 10 items to be used in the critical listening ability test. Each set is used for pre-test and post-test. This test is carried out simultaneously which is arranged by the teacher. In each test, first, the teacher reads one sentence and students are asked to put a mark at the bottom of the picture that corresponds to the sentence read. The correct answer for each question is 1 point and 0 for wrong answers. The total score is taken from the number of correct answers. The range of scores obtained in this test is 0-10. The results of the reliability test of the instrument for measuring listening ability scored Cronbach's Alpha of 0.89. Based on the test results, this listening ability measurement instrument is feasible for use in research.

To assess children's storytelling ability, the researcher used a narrative task sub-scale test which is specifically used in early childhood. This storytelling ability assessment scale is used for children aged 3-8 years and consists of two types. The type of test used in this study is type 1 used in the pre-test phase and the second type is used in the post-test phase (Sprugevica & Høien, 2003; Thomas et al., 2019). This storytelling ability test was carried out individually by the researcher. The test is carried out by giving instructions to students to tell the pictures that have been arranged in front of their friends. Before this test was carried out, students were given the opportunity to see the series of pictures and then tell the series of pictures until friends who did not see the pictures were able to understand the story. Children's storytelling activities were recorded and analyzed. The range of scores in this assessment is 0-20. The aspects assessed consisted of 20 items. Each item if correct is given a value of 1 and 0 if it is wrong. The instrument used to assess storytelling skills has been tested for reliability and validity. The reliability test results obtained Cronbach's Alpha value of 0.93. The value of the test results illustrates that this instrument is feasible to use in research.

3.5 Data Analysis

Researchers use SPSS to analyze data. Data that is missing or not included is 8% at the pre-test and 6% at the post-test. Missing data is entered after the analysis and found that there were no data deviations. Furthermore, the data is considered in the analysis. The normality test was carried out using the Shapiro Wiks test. Based on the test results, the data showed a significantly normal distribution. Visual inspection of the plot was carried out and showed a normal distribution of data. After the test was carried out, the researcher investigated aspects of language development and its relationship with the child's age. In addition, correlation coefficients were examined to find out the relationship between

aspects of language ability and the age of the child. Next, the researcher investigated the effect of the three traditional interactive reading models, focused attention, and mindmaps on children's language skills by using an intermediate ANOVA. Researchers used a non-parametric test with Spearman correlation because the sample involved in this study was relatively small. The results of the analysis are presented in tabular form and reinforced with explanations.

4. Results

4.1 Effectiveness of traditional interactive reading models, focusing on attention, and mindmaps in improving early childhood language skills

Descriptive data on the pre-test and post-test of the research variables are presented in the form of mean and standard deviation. The data is presented in table 3. Correlation processed data shows aspects of language skills, most of which are interrelated. Correlation coefficient data is presented in table 4. There were several interesting findings both at the pre-test and post-test, including that there was no correlation between aspects of receptive vocabulary language ability and children's speaking ability. In addition, the correlation was not found in the aspects of listening ability and speaking ability in the posttest phase.

The finding of the aspect of language skills that shows a positive correlation is between productive vocabulary and storytelling ability. In addition, age is also associated with language skills. Older students scored higher than younger students. However, this age is not correlated with receptive vocabulary and listening ability. In addition, there is no positive correlation between the receptive and productive vocabulary aspects with the student's age.

Table 3. Descriptive Statistics of the Results of the Application of the Interactive Reading Model

Aspect	Pretest					Posttest				
	n	M	SD	Min	Max	n	M	SD	Min	Max
Traditional Interactive Reading										
Productive vocabulary	500	4.56	3.45	1	7	500	6.82	3.67	2	15
Receptive vocabulary	500	112.80	13.75	80	130	500	105. 3	14.31	80	160
Listening skills	500	7.12	2.68	3	7	500	7.76	2.57	5	10
Narrative skills	500	7.20	3.64	3	15	500	8.57	3.32	6	20
Interactive Reading with Focused Attention										
Productive vocabulary	500	4.34	2.76	1	9	500	5.78	3.80	3	14
Receptive vocabulary	500	121.35	11.24	90	130	500	131.41	9.65	100	150
Listening skills	500	6.72	1.78	4	9	500	7.24	2.62	4	9
Narrative skills	500	8.30	2.73	4	14	500	9.23	3.23	5	20
Interactive Reading Using a Mind-map										
Productive	500	2.80	3.20	1	9	500	5.70	3.30	2	14

vocabulary										
Receptive vocabulary	500	121.42	13.25	85	154	500	124.42	13.78	95	150
Listening skills	500	6.91	1.41	4	9	500	7.42	1.50	4	9
Narrative skills	500	8.52	4.21	3	15	500	9.45	3.65	5	18

Table 4. Pearson Correlation Language Ability and Child's Age.

	Pretest					Posttest				
	1	2	3	4	5	1	2	3	4	5
1.1 Productive vocabulary	–	.50**	.35**	.30*	.45**	–	.43**	.21	.40**	.40**
1.2 Receptive vocabulary		–	.50**	.15	.15		– .	41**	.18	.20
1. 3. Listening Ability			–	.28*	.18			–	−.20	−.05
1. 4. Narrative Ability				–	.30*				–	.40**
1. 5. Old					–					–

*Significant at 0.05 (two sided).
**Significant at 0.01 (two sided).

4.2 The difference in the effectiveness of the three interactive reading models in improving language skills

The researcher used mixed ANOVA analysis to investigate the effectiveness of the three interactive reading models in improving students' language skills. The researcher used a 2x3 design by placing the pre-test and post-test phases as internal factors and three interactive reading models placed between the factors. The results of the analysis are presented in table 5. Based on the results of the analysis, the researcher found that the influence between factors and between factors was not very significant in the majority of aspects of students' language skills. This can be interpreted that the three interactive reading models make contributions that are not much different to children's language skills. This effect is not much different as evidenced by the post-test scores of the three interactive reading models which are not much different. Based on the results of the analysis, it was found that there was a significant contribution to the productive, receptive, and listening skills aspects of language skills. All students' language abilities showed a significant increase after receiving the intervention in the post-test phase. However, there is an aspect of language ability that does not significantly improve, namely the aspect of language ability - speaking ability.

Table 5. Influence between reading model and language skills

		Wilks' Lambda	F	df	p	η
Productive vocabulary	Interaction	.98	1.20	3,81	.435	.041
	Within	.70	50.20	2,82	<.001	.479
	Between		2.65	3,80	.092	.072
Receptive vocabulary	Interaction	.89	0.34	3,70	.714	.010
	Within	.98	5.23	2,85	.056	.063
	Between		0.56	3,83	.780	.023
Listening	Interaction	.99	0.30	3,45	.684	.009

skills						
	Within	.92	14.40	2,81	<.001	.172
	Between		1.15	3,81	.462	.042
Narrative skills	Interaction	.98	0.05	3,83	.881	.002
	Within	1.12	0.32	2,68	.834	.005
	Between		2.45	3,83	.245	.072

Based on the results of the analysis in table 5, the increase in language skills can be seen in the productive and receptive vocabulary aspects of language skills. The strategies used in the interactive reading model pay attention to several aspects, including semantics and word repetition. The semantic aspect makes students motivated to classify meanings or meanings that make students able to gain a lot of mastery of new vocabulary. The ability to understand this vocabulary can be done by using the appropriate context with the vocabulary. This context will greatly assist students in understanding or recalling the meaning of vocabulary. Mastery of receptive vocabulary also experienced a significant increase due to the application of an interactive reading model. Based on the results of the analysis, students learn a lot of vocabulary and its meaning from the context of the stories they read assisted by teacher explanations or instructions. With the increase in vocabulary skills, aspects of students' speaking skills also experienced a significant increase from each phase.

5. Discussion

Based on the results of the analysis, the comparison of the effectiveness of traditional interactive reading models, focused attention, and mind maps is not very significant. The three interactive reading models as a whole make the same significant contribution to aspects of children's language skills. Of the four aspects of language ability, three aspects of language ability were found to be higher at the time of the post-test. The three language skills that show the most significant are productive vocabulary, receptive vocabulary, and storytelling ability. This finding is in accordance with the findings of several previous studies which prove that increasing productive vocabulary, receptive vocabulary and storytelling ability can be done by integrating several methods (Mansour, 2020; Şimşek & Işıkoğlu Erdoğan, 2021; S. Z. Zhang et al., 2020). Productive vocabulary, receptive vocabulary and speaking skills are more prominent than listening skills because the interactive reading model is more intensive in encouraging students to communicate, both asking questions and responding to stories. This finding is strengthened by previous research which confirms that students' language abilities are very dependent on the habits or methods most frequently used in the learning process (Li & Yang, 2015; Schutz & Danielson, 2019). Listening ability is not well explored because the teacher tends to repeat questions or ask for clarification if the child is difficult to understand. This finding is consistent with the theory that interactive reading models tend to improve productive language skills. This finding is also confirmed by previous findings which found that oral language abilities can be effectively improved through models that encourage students' oral language abilities (Thomas et al., 2019; Thompson & Melchior, 2020).

Aspects of productive and receptive vocabulary language skills increase because of the strategies used in both traditional interactive reading models, focused attention, and mind-maps. The strategies used in the interactive reading model pay attention to several aspects, including semantics and word repetition (Eviatar et al., 2018; Hannon et al., 2020; Hooper et al., 2020). The semantic aspect makes students motivated to classify meanings that make students able to gain a lot of new vocabulary mastery. This strategy is carried out in every vocabulary teaching. Previous studies have proven that interactive reading models that pay attention to word meanings greatly support children's language skills (Hadianto et al., 2021a; Timmons, 2019; Wanzek et al., 2020). The ability to understand this vocabulary can be done by using contexts that are appropriate to the vocabulary. This context will greatly assist students in understanding or recalling the meaning of vocabulary. Mastery of receptive vocabulary also experienced a significant increase as a result of the application of an interactive reading model. Based on the results of the analysis, students learn a lot of vocabulary and its meaning from the context of the stories they read assisted by explanations or teacher's instructions. This finding was quite surprising for researchers because mastery of receptive and productive vocabulary can be done in a relatively short time. These findings complement previous research findings which confirm that productive vocabulary tends to be acquired over a longer period of time compared to receptive vocabulary (Hadianto et al., 2021b; Ives et al., 2020; Lin & Zhang, 2021). With this increase in vocabulary skills, aspects of students' speaking ability also increased quite significantly from each phase. This is consistent with the theory that if a child has good vocabulary knowledge, the student will also have good listening and speaking skills because he has sufficient capital.

The interactive reading model intervention using question strategies in the before, medium, and after reading phases increases students' speaking skills. Asking this question is considered effective in improving the language skills of early childhood students (Hayes & Berthelsen, 2020; Schutz & Danielson, 2019). Questioning strategies are used in all three models of traditional interactive reading, focused attention, and mind-maps. An interactive reading model on focused attention and mindmap questions is given as a guide to focus students' reading goals on each section, question strategies on traditional interactive reading models, question strategies are also used to explore student understanding and encourage students to provide responses to the contents of the books they have read (Q. Gao et al., 2022; Piasta et al., 2018). Students' speaking ability increased after the intervention because during the intervention students were encouraged to continue to speak both answering questions and responding. In addition, through the mind-map interactive reading model, students are encouraged to tell the contents of the book with a series of lines and pictures.

This is due to the ability during the intervention students are indeed given many opportunities to ask questions again if the question is not understood, or sometimes the teacher has to repeat the explanation (Bippert, 2020; Goodrich et al., 2016). Of course, this does not encourage optimal listening skills. Comparison of the effect of the three interactive reading models which are not much different on language skills is caused by several factors, including the question strategy used in each reading model which allows the same questions to be used in each

model even though the patterns are different, the interactive reading model encourages students to interact actively which allows the purpose of the interaction to be the same, and in each model the researcher uses a book of the same type, namely a picture book. These factors enable these three interactive reading models to have a similar effect on children's language skills (Beucher et al., 2020; Cabell et al., 2019; Duzy et al., 2014).

6. Conclusion, Implications, and Recommendation

The traditional interactive reading models, focused attention, and mind-maps make a significant contribution to language skills in early childhood. Comparison of the effectiveness of the three models of interactive reading is not too significant because the strategy used in the three models uses the same strategy, namely asking questions even though the patterns and organizations are different. Language skills that showed a significant increase were receptive vocabulary mastery, productive vocabulary, and speaking skills, while the aspects of listening language skills did not significantly improve. This is because the three interactive reading models during the intervention encourage children to continue to interact with the teacher. The process makes productive language skills superior to receptive language skills. The implication of this research is that interactive reading models can be used by teachers and parents in order to improve children's language skills. If parents and teachers are more active in learning, readers will make early childhood students more active in language.

This study has several limitations including the limited sample both in terms of the number of students and the variety of students who are only centered in one area. In addition, the number of participating schools is still limited to only five schools. In addition, the research analysis in this study focuses more on quantitative analysis, so that the qualitative analysis in this study is still not in-depth and the intervention time is still too short, only 5 weeks, so that the effect on the language skills provided is still not optimal, and there are still many teachers who are not familiar with interactive reading models, so prior debriefing is needed. In addition, the gender variable in this study was not involved. Based on the limitations of this research, future research must pay attention to these deficiencies including involving a wider and more varied sample both from the aspect of the number and area of schools, qualitative analysis which must be deepened can be carried out through interviews or questionnaires to find out the changes experienced by students, the intervention time must be longer so that the effect given is more optimal, and research must pay attention to gender variables which might give a different picture of results.

7. References

Alvarenga, P., Zucker, T. A., Tambyraja, S., & Justice, L. (2020). Contingency in Teacher-Child Emotional State Talk during Shared Book Reading in Early Childhood Classrooms. *Early Education and Development*, *31*(8), 1187–1205. https://doi.org/10.1080/10409289.2020.1722786

Beucher, B., Arya, D., & Wang, C. (2020). Interactive whiteboard (IWB) use during student collaborative reading practices: A year-long comparison of instructional approaches. *Education 3-13*, *48*(7), 779–794. https://doi.org/10.1080/03004279.2019.1649292

Bippert, K. (2020). Text Engagement & Reading Strategy Use: A Case Study of Four Early Adolescent Students. *Reading Psychology*, *41*(5), 434–460. https://doi.org/10.1080/02702711.2020.1768987

Cabell, S. Q., Zucker, T. A., DeCoster, J., Melo, C., Forston, L., & Hamre, B. (2019). Prekindergarten Interactive Book Reading Quality and Children's Language and Literacy Development: Classroom Organization as a Moderator. *Early Education and Development*, *30*(1), 1–18. https://doi.org/10.1080/10409289.2018.1514845

Cameron, T. A., Carroll, J. L. D., Taumoepeau, M., & Schaughency, E. (2019). How Do New Zealand Teachers Assess Children's Oral Language and Literacy Skills at School Entry? *New Zealand Journal of Educational Studies*, *54*(1), 69–97. https://doi.org/10.1007/s40841-019-00133-4

Duzy, D., Souvignier, E., Ehm, J. H., & Gold, A. (2014). Early Decoding Speed and Later Reading Competencies in Children with German as a Second Language. *Child Indicators Research*, *7*(4), 787–804. https://doi.org/10.1007/s12187-014-9242-x

Elek, C., Gray, S., West, S., & Goldfeld, S. (2022). Effects of a professional development program on emergent literacy-promoting practices and environments in early childhood education and care. *Early Years*, *42*(1), 88–103. https://doi.org/10.1080/09575146.2021.1898342

Eviatar, Z., Taha, H., & Shwartz, M. (2018). Metalinguistic awareness and literacy among semitic-bilingual learners: a cross-language perspective. *Reading and Writing*, *31*(8), 1869–1891. https://doi.org/10.1007/s11145-018-9850-9

Faulk, N. (2018). Bringing Scale and Structure to the Online Information Literacy Program. *Journal of Library and Information Services in Distance Learning*, *12*(3–4), 198–208. https://doi.org/10.1080/1533290X.2018.1498633

Gao, Q., Wang, H., Chang, F., An, Q., Yi, H., Kenny, K., & Shi, Y. (2022). Feeling bad and doing bad: student confidence in reading in rural China. *Compare*, *52*(2), 269–288. https://doi.org/10.1080/03057925.2020.1759027

Gao, T., Zhao, J., Li, X., Mao, Y., Chen, Q., & Harrison, S. E. (2020). Impact of rapid reading skills training on reading rate and reading achievement among primary school students in China. *Educational Psychology*, *40*(1), 42–61. https://doi.org/10.1080/01443410.2019.1607257

Goodrich, J. M., Farrington, A. L., & Lonigan, C. J. (2016). Relations between early reading and writing skills among Spanish-speaking language minority children. *Reading and Writing*, *29*(2), 297–319. https://doi.org/10.1007/s11145-015-9594-8

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021a). Does reading comprehension competence determine level of solving mathematical word problems competence? *Journal of Physics: Conference Series*, *1806*(1). https://doi.org/10.1088/1742-6596/1806/1/012049

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021b). Enhancing scientific argumentation skill through partnership comprehensive literacy. *Journal of Physics: Conference Series*, *2098*(1).

Hadianto, D., S. Damaianti, V., Mulyati, Y., & Sastromiharjo, A. (2022). Effectiveness of Literacy Teaching Design Integrating Local Culture Discourse and Activities to Enhance Reading Skills. *Cogent Education*, *9*(1). https://doi.org/10.1080/2331186X.2021.2016040

Hannon, P., Nutbrown, C., & Morgan, A. (2020). Effects of extending disadvantaged families' teaching of emergent literacy. *Research Papers in Education*, *35*(3), 310–336. https://doi.org/10.1080/02671522.2019.1568531

Hayes, N., & Berthelsen, D. C. (2020). Longitudinal profiles of shared book reading in early childhood and children's academic achievement in Year 3 of school. *School Effectiveness and School Improvement*, *31*(1), 31–49.

Hooper, S. R., Costa, L. J. C., Green, M. B., Catlett, S. R., Barker, A., Fernandez, E., & Faldowski, R. A. (2020). The relationship of teacher ratings of executive functions to emergent literacy in Head Start. *Reading and Writing*, *33*(4), 963–989. https://doi.org/10.1007/s11145-019-09992-1

Huennekens, M. E., & Xu, Y. (2016). Using dialogic reading to enhance emergent literacy skills of young dual language learners. *Early Child Development and Care*, *186*(2), 324–340. https://doi.org/10.1080/03004430.2015.1031125

Ives, S. T., Parsons, S. A., Parsons, A. W., Robertson, D. A., Daoud, N., Young, C., & Polk, L. (2020). Elementary Students' Motivation to Read and Genre Preferences. *Reading Psychology*, *0*(0), 660–679. https://doi.org/10.1080/02702711.2020.1783143

Joseph, L., Ross, K., Xia, Q., Amspaugh, L. A., & Accurso, J. (2021). Reading Comprehension Instruction for Students with Intellectual Disabilities:A Systematic Literature Review. *International Journal of Disability, Development and Education*, *00*(00), 1–26. https://doi.org/10.1080/1034912x.2021.1892033

Jung, Y. (2019). Associations between in-the-moment behavior of children, family literacy program use, and Latina mother-child book reading. *Early Child Development and Care*, *189*(13), 2071–2084. https://doi.org/10.1080/03004430.2018.1438423

Kiuru, N., DeLay, D., Laursen, B., Burk, W. J., Lerkkanen, M. K., Poikkeus, A. M., & Nurmi, J. E. (2017). Peer selection and influence on children's reading skills in early primary grades: a social network approach. *Reading and Writing*, *30*(7), 1473–1500. https://doi.org/10.1007/s11145-017-9733-5

Kosasih, A., Supriyadi, T., Firmansyah, M. I., & Rahminawati, N. (2022). Higher-Order Thinking Skills in Primary School: Teachers' Perceptions of Islamic Education. *Journal of Ethnic and Cultural Studies*, *9*(1), 56–76. https://doi.org/10.29333/ejecs/994

Li, G., & Yang, L. (2015). A multilevel analysis of Asian immigrant children's reading achievement in the early years: Evidence from the ECLS-K data. *Frontiers of Education in China*, *10*(1), 110–131. https://doi.org/10.3868/s110-004-0015-0007-5

Lin, J., & Zhang, H. (2021). Cross-linguistic influence of phonological awareness and phonological recoding skills in Chinese reading acquisition among early adolescent students. *Journal of General Psychology*, *0*(0), 1–22. https://doi.org/10.1080/00221309.2021.1922345

Mansour, N. (2020). The dissonance between scientific evidence, diversity and dialogic pedagogy in the science classroom. *International Journal of Science Education*, *42*(2), 190–217. https://doi.org/10.1080/09500693.2019.1706114

Otaiba, S. Al. (2005). Response to early literacy instruction: Practical issues for early childhood personnel preparation. *Journal of Early Childhood Teacher Education*, *25*(3), 201–209. https://doi.org/10.1080/1090102050250303

Paige, D. D., Smith, G. S., Rasinski, T. V., Rupley, W. H., Magpuri-Lavell, T., & Nichols, W. D. (2019). A path analytic model linking foundational skills to Grade 3 state reading achievement. *Journal of Educational Research*, *112*(1), 110–120. https://doi.org/10.1080/00220671.2018.1445609

Piasta, S. B., Groom, L. J., Khan, K. S., Skibbe, L. E., & Bowles, R. P. (2018). Young children's narrative skill: concurrent and predictive associations with emergent literacy and early word reading skills. *Reading and Writing*, *31*(7), 1479–1498. https://doi.org/10.1007/s11145-018-9844-7

Price-Mohr, R., & Price, C. (2017). Gender Differences in Early Reading Strategies: A Comparison of Synthetic Phonics Only with a Mixed Approach to Teaching Reading to 4–5 Year-Old Children. *Early Childhood Education Journal*, *45*(5), 613–620. https://doi.org/10.1007/s10643-016-0813-y

Rianto, A. (2021). Examining gender differences in reading strategies, reading skills, and

English proficiency of EFL University students. *Cogent Education*, *8*(1). https://doi.org/10.1080/2331186X.2021.1993531

Rohayati, Syihabuddin, Anshori, D., & Sastromiharjo, A. (2023). Effectiveness of Epistemic Beliefs and Scientific Argument to Improve Learning Process Quality. *International Journal of Instruction*, *16*(2), 493–510. https://doi.org/10.29333/iji.2023.16227a

Schutz, K. M., & Danielson, K. A. (2019). (Re)shaping Representations of Practice Inside Rehearsals of Interactive Read Alouds: The Complex Work of Teacher Educators. *Literacy Research and Instruction*, *58*(4), 232–252. https://doi.org/10.1080/19388071.2019.1638472

Şimşek, Z. C., & Işıkoğlu Erdoğan, N. (2021). Comparing the effects of different book reading techniques on young children's language development. *Reading and Writing*, *34*(4), 817–839. https://doi.org/10.1007/s11145-020-10091-9

Sprugevica, I., & Høien, T. (2003). Enabling skills in early reading acquisition: A study of children in Latvian kindergartens. *Reading and Writing*, *16*(3), 159–177. https://doi.org/10.1023/A:1022843607921

Sutter, C. C., Campbell, L. O., & Lambie, G. W. (2020). Predicting Second-Grade Students' Yearly Standardized Reading Achievement Using a Computer-Adaptive Assessment. *Computers in the Schools*, *37*(1), 40–54. https://doi.org/10.1080/07380569.2020.1720611

Thomas, N., Colin, C., & Leybaert, J. (2019). Impact of interactive reading intervention on narratives skills on children with low socio-economic background. *European Early Childhood Education Research Journal*, *27*(6), 837–859. https://doi.org/10.1080/1350293X.2019.1678924

Thompson, E., & Melchior, S. (2020). Improving Empathy in Children: Interactive Read-Aloud as a Counseling Intervention. *Journal of Creativity in Mental Health*, *15*(2), 199–211. https://doi.org/10.1080/15401383.2019.1676857

Timmons, K. (2019). Kindergarten Expectations and Outcomes: Understanding the Influence of Educator and Child Expectations on Children's Self-Regulation, Early Reading, and Vocabulary Outcomes. *Journal of Research in Childhood Education*, *33*(3), 471–489. https://doi.org/10.1080/02568543.2019.1609144

Villanueva, J. M. (2022). Language profile, metacognitive reading strategies, and reading comprehension performance among college students. *Cogent Education*, *9*(1). https://doi.org/10.1080/2331186X.2022.2061683

Wanzek, J., Otaiba, S. Al, Schatschneider, C., Donegan, R. E., Rivas, B., Jones, F., & Petscher, Y. (2020). Intensive Intervention for Upper Elementary Students With Severe Reading Comprehension Difficulties. *Journal of Research on Educational Effectiveness*, *13*(3), 408–429. https://doi.org/10.1080/19345747.2019.1710886

Wood, K. R., Wood, E., Gottardo, A., Archer, K., Savage, R., & Piquette, N. (2021). Workshop Training to Facilitate Parent-Child Instructional Opportunities for Reading and Social Development with Kindergarten Students. *Journal of Research in Childhood Education*, *35*(3), 438–457.

Zhang, C., Bingham, G. E., & Quinn, M. F. (2017). The associations among preschool children's growth in early reading, executive function, and invented spelling skills. *Reading and Writing*, *30*(8), 1705–1728. https://doi.org/10.1007/s11145-017-9746-0

Zhang, S. Z., Inoue, T., Shu, H., & Georgiou, G. K. (2020). How does home literacy environment influence reading comprehension in Chinese? Evidence from a 3-year longitudinal study. *Reading and Writing*, *33*(7), 1745–1767. https://doi.org/10.1007/s11145-019-09991-2

Zhao, W., Song, Y., Zhao, Q., & Zhang, R. (2019). The effect of teacher support on primary school students' reading engagement: the mediating role of reading interest and chinese academic self-concept. *Educational Psychology*, *39*(2), 236–253.