



## Application of Digital Pop-Up Book Learning Media in Improving the Beginning Reading Ability of Children Aged 5-6 Years

Rustiana Yuli Astutik✉, Neneng Tasuah

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Universitas Negeri Semarang, Semarang, Indonesia

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### Abstract

This study aims to determine increasing initial reading in children aged 5-6 years based on the application of learning media pop-up book digital at Kindergarten Mekar Sari 03 Soneyan, Margoyoso, Pati. The approach in this research uses a quantitative experimental approach with a Pre-experimental Design and a One-Group Pretest-Posttest Design. The subjects in this study were children aged 5-6 years. The sampling technique used a saturated sampling technique using the entire population of 30 children aged 5-6 years at Kindergarten Mekar Sari 03 Soneyan, Margoyoso District, Pati Regency. Data collection techniques use observation, interviews, questionnaires and documentation. The data analysis technique uses inferential statistics with hypothesis testing using Paired Sample T-Test. The research results from the t test calculations obtained the value  $|t_{count}| > t_{table}$ , namely  $21.60 > 2.04523$ , with a significance value of 0.000, so that  $H_0$  is rejected and  $H_a$  is accepted, meaning that there is a significant increase in children's initial reading ability by 33.46%. There is an average difference in the initial reading ability of children aged 5-6 years before and after being given treatment. The N-gain test results obtained a value of 0.60, thus indicating that the application of digital pop-up book learning media in improving children's initial reading skills is at medium criteria. This shows that digital pop-up book learning media can be used to improve children's initial reading skills.

### How to cite

## INTRODUCTION

Early Childhood Education or PAUD according to Law no. 20 of 2003 article 1 is a coaching effort through providing educational stimulation to children from birth to the age of six. According to Diana (2013) early childhood education can also be seen as a conscious effort to prepare children for their future roles as early as possible through instruction, training and guidance. Early childhood education consists of three pathways, namely non-formal pathways, formal pathways and informal pathways. Non-formal PAUD consists of Play Groups (KB), Child Care Places (TPA) and Similar PAUD Units (SPS), which are divided into PAUD Family Development for Toddlers (BKB), Qur'an learning places (TPQ), Muslim Children's Development Parks (TBAM) and the Church's Sunday School. Meanwhile, what is meant by informal PAUD is education that is obtained in a family environment or is not institutionalized. Meanwhile, according to Law no. 20 of 2003 article 28 paragraph 3 states that formal early childhood education is in the form of Kindergarten (TK), Raudhatul Athfal (RA), or other equivalent forms. Kindergarten classes are classified into two groups, namely group A classes and group B classes.

Based on Minister of Education and Culture Regulation No. 137 of 2014 which explains the Child Development Achievement Level Standards (STPPA), it is stated that the skills and knowledge taught cover several aspects including aspects of cognitive/intellectual development, aspects of language development, aspects of the development of religious and moral values, aspects of artistic development, aspects of physical-motor development, and aspects of social-emotional development. One aspect that is developed from an early age is the child's language development aspect. Language skills are very important for children, because they are preparation for entering elementary school and as a means of communication for children to convey hopes, thoughts, desires, requests and other personal interests. (Ermita, 2018). Language is a medium of communication because it gives children the skills to be able to communicate and express themselves so that children become part of their social group.

Language development itself has four components, namely the development of reading, writing, listening and speaking. Where language development is very important for children's lives, because children can interact with their environment and friends, language skills can develop well

(Sari et al., 2017). One part of language development is reading. According to Adhim (2007), reading is a very complex process. The ability to read is a very fundamental ability where this reading ability is the basis for developing other abilities. Reading ability in kindergarten children can be known as initial reading ability. According to Nofika & Marlina (2022), in developing aspects of initial reading skills, this should be done through learning activities while playing. The importance of developing aspects of reading ability from an early age (kindergarten age) was stated by Leonhardt in (Agustina & Hafidz, 2017) that early reading is very important for children to have. Children who enjoy reading will have high language development.

So, the love of reading must be introduced from an early age. Early childhood language mastery begins to be systematic at the age of 5-6 years. Apart from that, children can play symbolic games, but at this age children are still egocentric. Reading skills can already be developed in kindergarten, as stated by Dhieni et al (2010), one aspect of ability that must be developed is the ability to read and write. By getting into the habit of learning to read from an early age, children will get more information than they have read.

Based on the results of interviews conducted by researchers with group B class teachers at Mekar Sari 03 Soneyan Kindergarten, Margoyoso District, Pati Regency, it was stated that children's ability to recognize the concept of letters and words as a stage of the initial reading process is still not in accordance with the stages of development they should be. The low initial reading ability of children can be seen from the results of assessments carried out by teachers, namely that only 6 out of 30 children are able to read with good criteria, where the children are able to read syllables and combine them into simple words. Meanwhile, other children still have difficulty recognizing the concept of letters and words as a stage of initial reading ability, even though language skills in the aspect of reading skills are the basis for children's communication development.

The results of other interviews show that the media available at Kindergarten Mekar Sari 03 Soneyan Margoyoso Pati is quite good in the sense that there is a lot of variety and has quite good value. However, most of the media used by educators in the learning process is monotonous, such as blackboards, magazines and storybooks in general, only the magazines and storybooks used are more colorful. Although the various media used using conventional methods are quite

good, however, as technology develops, a more interactive and communicative learning concept is needed in transferring knowledge so that learning is more optimal and interesting.

Meanwhile, in these institutions, the use of digital media such as cellphones and laptops is still very rare, because the facilities and infrastructure are still inadequate, as in the institutions there are still no LCDs, so educators use learning media using conventional methods. Even though media like this is considered less effective in learning, it can only help students who already have the ability to read well, while students who do not have the ability to read well will experience difficulties. Because there is so much writing in each media, students, especially those whose reading skills are not good, will get bored quickly and want to leave learning quickly. Apart from that, there is also no curiosity awakened in students to learn to read.

Looking at the existing problems, initial reading skills need to be developed in the right way, namely by choosing the right learning media. One of the media that can be used to develop initial reading skills at Mekar Sari 03 Soneyan Kindergarten, Margoyoso District, Pati Regency is by using digital pop-up book learning media. Digital pop-up book learning media is a learning media in the form of three-dimensional animation that can foster students' imagination, increase new knowledge, and make it easier for students to understand a form of letter and word symbols. (Setiyanigrum, 2020). Digital pop-up book learning media also has several advantages, including providing a display with very attractive animations, easy to access because it is digital, can be used as a learning medium at home, the impression conveyed in digital pop-up book learning media is stronger, and very easy to understand. Apart from that, the use of digital pop-up book learning media can bring children to a pleasant learning environment in early reading learning because teachers use learning strategies while recognizing pictures which can provide an active and interesting learning situation. It is hoped that an active and interesting learning situation will make learning meaningful for children.

The research obtained in this study aims to find out that digital pop-up book learning media can improve the beginning reading abilities of children aged 5-6 years. The novelty of this research uses technology that contains interesting images, colors, shapes and writing. So it will attract children's attention in aspects of children's language development, one of which is the introduction to early reading. This digital

pop-up book media uses 3 (three) themes, namely animal, fruit and vegetable themes which are adapted to children's interests and interests.

## METHOD

This research was conducted as experimental research using a quantitative approach. The research method design uses a Pre-experimental Design with One-Group Pretest-Posttest Design type which compares conditions before and after treatment with pretest and posttest to determine the improvement in a particular treatment (X), the research design is carried out before treatment (O1) and after (O2). The research population was children from Mekar Sari 03 Soneyan Kindergarten for the 2022/2023 school year aged 5-6 years with a total of 30 children and a sample of 30 children. In sampling, non-probability sampling uses a sampling technique, namely saturated sampling with all members of the population used as samples (Sugiyono, 2016). This technique is used because the population is relatively small. The data collection method uses a questionnaire. The instrument used in this research was a questionnaire using a Likert scale regarding the development of early reading abilities in children aged 5-6 years. This research data analysis uses inferential statistical data with parametric statistics. Parametric statistical techniques are used to analyze interval and ratio data (Sugiyono, 2019). Paired Sample T-Test is used in hypothesis testing and a difference test is carried out to ensure whether there is a difference (mean) between the two samples. The normality test is used to carry out prerequisite tests before analyzing the hypothesis. Apart from that, the n-gain test is used by researchers to assess how well the media used is.

This research designs media in the form of books but utilizes technological media in which there are moving images when opened and in three-dimensional form which is able to encourage students' desires when receiving learning material. This media is called digital pop-up book media. This digital pop-up book media is very safe for young children, children can also get used to using technology in learning, increase children's imagination, and can foster children's interest in reading. This digital pop-up book learning media provides 3 (three) themes, namely animal, fruit and vegetable themes which are adapted to children's interests and interests in aspects of language development, one of which is early reading ability.



**Figure 1.** Media DesignDigital Pop-Up Books

## RESULTS AND DISCUSSION

This research was conducted on children aged 5 to 6 years at Kindergarten Mekar Sari 03 Soneyan with the application of learning media, namely digital pop-up book media, to improve initial reading skills. Learning at Mekar Sari 03 Soneyan Kindergarten, Margoyoso District, Pati Regency uses a central learning model, consisting of a block center, cooking center, arts center, language center, preparation center, natural materials center and mathematics center, but only in carrying out activities that cover abilities. Children's early reading is still not done optimally. Teachers still use limited media, namely simple media, namely blackboards, picture books, which are still less interesting and varied for children and do not involve child interaction. Learning at school focuses on physical-motor activities so that stimulation of children's early reading abilities is still given little attention.

Hurlock in his book on children's language development reveals that early reading is part of a child's speech development, so it requires an understanding of meaning and sound in its introduction. Learning about children's early reading abilities cannot be separated from the basic elements of children's language abilities. Teachers or parents must pay attention to the main elements of children's initial reading learning so that they can achieve the expected abilities. According to Leonhardt in (Agustina & Hafidz, 2017) states that early reading is very important for children to have. Children who enjoy reading will have high language development. So, the love of reading must be introduced from an early age. Early childhood language mastery begins to be systematic at the age of 5-6 years. Apart from that, children can play symbolic games, but at this age children are still egocentric.

This digital pop-up book media is a learning medium that leads to game learning. The media in this research can be called digital pop-up book media, because it uses technology that utilizes Microsoft PowerPoint. According to Aisah et al (2021), digital pop-up book media is different from posters and flyers, because this media is a learning media in the form of animation which has 3 dimensional elements, such as can move,

has visualization, and is easy to access which is expected to be able to grow students' imagination, increase new knowledge, and make it easier for students to understand a symbol. Digital pop-up book media is good for children in the learning process, but the learning needs to be structured and adapted to the child's interests, especially to improve children's early reading. Through the use of digital pop-up book media, children can learn to develop their language skills as well as their cognitive abilities. Teachers can easily apply learning with this media because this media is very simple and the learning carried out is not monotonous, so children do not feel bored.

Increasing children's early reading abilities based on the application of digital pop-up book learning media is relevant to theories of language acquisition in children, namely Behaviorism Theory and Interactionism Theory. Behaviorism theory states that a person's linguistic behavior can be seen directly and is related to the relationship between stimulus and response. Language behavior is considered effective if it is able to make an appropriate response to a stimulus. This response becomes a trend if it is justified. For example, if someone says "bilangkali" for "perhaps," the child will be criticized by everyone who hears the word. If in the future the child pronounces it correctly, then there will be no more criticism because the pronunciation is correct. This situation is called providing an appropriate response to stimuli and is the key to first language acquisition (Fatmawati, 2015). This means that the surrounding environment, such as parents, family and teachers, is a stimulus that influences a child's response to language. Children who receive good support from the surrounding environment will have better language quality.

The next relevant theory is Interactionism Theory. Interactionism theory states that language is obtained from the interaction between the child's mental learning abilities and the language environment. This acquisition is related to the interaction between input and the student's internal capacity. According to Anggraini (2016) Children's first language acquisition is greatly influenced by internal and external factors. This means that input from the child's language environment, such as the learning methods and learning media applied, can influence the child's language acquisition. The digital pop-up book learning media in this research is input from the child's language environment, through this media the child's previously formed mental learning abilities are increasingly stimulated by this media. Then the research results showed that the child's

initial reading ability increased based on the application of this media.

Apart from the theories above, increasing children's early reading abilities based on the application of digital pop-up book media is also supported by opinions in several previous relevant studies. According to Alvia (2017) in his research which states that the application of pop-up book media can improve children's initial reading abilities. Judging from the results of cycle I, the percentage of learning completeness was 30%, cycle II was 60%, and cycle III reached 85%. Sari et al (2022) in his research, he explained that pop-up book media was stated to be practical, valid and effective in improving beginning reading ability. The effectiveness of teaching materials can be seen from observing student activities and learning outcomes, namely validation analysis results of 86.84 in the very valid category, practicality test results obtained on average 91.64 in the very practical category and effectiveness test results obtained on average 96 in the very category. tall. In line with this opinion, Nilmayani et al (2020) in his research stated that The use of busy book media on the initial reading ability of children aged 5-6 years at the Integrated PAUD Filosofia Kubu Barussalam Rokan Hilir can significantly influence the initial reading ability of students. classes that use busy book media compared to classes that do not use busy book media in learning are 70%.

Then further, research by Afrianti & Wirman (2020), The research results show that the use of busy book media can help stimulate children's reading abilities, this is because busy book media is media that is shaped like a book, has pages, and each page contains activities. So it can stimulate children to recognize letters and symbols, arrange letters into words, and string words into mea-

ningful sentences. Furthermore, it is reinforced by research Martin et al (2019) which recommends that the use of pop-up book learning media can be used for learning activities such as improving initial literacy skills because this media is considered effective and produces good improvements.

Based on analysis of research results and theories of language development and reinforced by relevant research, the use of learning media is feasible and recommended for use in stimulating children's early reading development, because it can make children more explorative and expressive in understanding and expressing language. Apart from symbols from images that give rise to real concepts for children, the letters available in the media are also increasingly able to stimulate children to know the correct pronunciation and writing of the vocabulary they have acquired. The use of digital pop-up book learning media to stimulate the development of children's initial reading skills has been proven to show good and significant improvements at a moderate level.

**Table 1.** Results of Descriptive Statistical Data Analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	30	20.00	71.00	48.9667	14.58503
Posttest	30	50.00	100.00	82.4333	12.08214
Valid N (listwise)	30				

(Table Source: 2022 Research Data)

The data obtained in table 1 outlines that the results of descriptive analysis from 30 respondents are related to initial reading ability. It is known that the number of respondents (N) was 30 children. The mean pretest score is 48.97 and

**Table 2.** Paired Sample T-Test Test Results

**Paired Sample T-Test**  
Paired Differences

				95% Confidence Interval of the Difference				Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error	Lower	Upper	t	Df	
Pair 1	Pretest - Posttest	-33.47	8.48	1.54	-36.63 -30.29	-21.60	29	,000

(Table Source: 2022 Research Data)

the posttest score is 82.43. The smallest value of the pretest result is 20 and the smallest value of the posttest result is 50. The largest (maximum) value of the pretest result is 71 and the largest value of the posttest result is 100. Meanwhile, the standard deviation of the pretest results is 14.585 and the standard deviation of the posttest results is 12.082.

Table 2 contains the results of the Paired Sample T-Test showing that  $|t_{count}|$  amounting to 21.60. It is known that the value of  $t_{table}$  with  $df = 29$  is 2.04523. Based on the results of these calculations, the value  $|t_{count}| > t_{table}$ , namely  $21.60 > 2.04523$ , with a significance value of 0.000, so that  $H_0$  is rejected and  $H_a$  is accepted. This means that there is a significant increase in the initial reading ability of children aged 5-6 years after being treated with digital pop-up book learning media. The significant difference can be seen from the 2 tailed significance value  $< 0.05$ , namely 0.000. Also seen from the average scores obtained before and after being given the digital pop-up book learning media shows this.

$$\begin{aligned}
 \text{Posttest scores} &= 2473 \\
 \text{Pretest scores} &= 1469 \\
 \text{Ideal score} &= \text{maximum score} \times \text{number of} \\
 &\quad \text{questionnaires} \times \text{number of respondents} \\
 &= 4 \times 26 \times 30 \\
 &= 3120 \\
 \text{N-gain} &= \frac{(\text{skor posttest} - \text{skor pretest})}{(\text{skor ideal} - \text{skor pretest})} \\
 \text{N-gain} &= \frac{(2473 - 1469)}{(3120 - 1469)} \\
 \text{N-gain} &= \frac{1004}{1651} \\
 \text{N-gain} &= 0.60
 \end{aligned}$$

**Table3.** Interpretation Criteria on the N-Gain Index

Average	Criteria
$g > 0.7$	Tall
$0.3 \leq g \leq 0.7$	Currently
$0 \leq g \leq 0.3$	Low

The n-gain test calculation above was carried out to determine the effectiveness of using a particular treatment in research. It is known that the N-gain value from this research obtained a value of 0.60. Meanwhile, in table 3, the interpretation criteria for the N-gain index explain that the digital pop-up book media for improving children's initial reading skills is at the criteria for moderate improvement.

The success in this research that researchers have achieved in improving initial reading

ability can be seen from the results of improvements in each aspect. In the aspect of recognizing letters, the highest percentage increase was 33%. Where the pretest results obtained a score of 46% and the posttest 79%. This increase shows that children are able to recognize and name vowels, consonants, lowercase letters and uppercase letters. Supported opinion Sumitra et al., (2019) that recognizing letters will develop through hearing and then being able to say them again with the aim of training children in recognizing letter sequences. The aspect of recognizing words is in second place, with a percentage increase of 31% with a pretest score of 47% and a posttest score of 78%. Improvement in this aspect is indicated by the child being able to read syllables and put them together to form simple words. Likewise, the aspect of reading pictures and understanding the meaning of pictures received the same percentage increase as the aspect of recognizing words, namely 31% with a pretest score of 48% and a posttest score of 79%. Improvement in this aspect is marked by the child's ability to read and understand the meaning of the picture.

Meanwhile, the aspect of reading sentences is in the position of obtaining the lowest percentage increase, namely 30%. Where the pretest results obtained a score of 49% and the posttest 79%. Improvement in this aspect is marked by the child's ability to read simple sentences. According to Hadian et al., (2018) A simple sentence is a sentence containing information that has one sentence pattern with two elements, namely subject (S) and predicate (P). Apart from these two elements, other elements can also be expanded such as (O) and information. Apart from that, the success in this research is also shown by the increase and development of children's initial reading abilities. It can be seen that children are starting to be confident when carrying out activities, children are willing and brave to answer when asked, and children can read simple words and sentences well and appropriately. This increase in ability is also inseparable from the implementation of habituation carried out by the teacher.

## CONCLUSION

Based on research results, the initial reading ability of children aged 5-6 years can increase through the application of digital pop-up book media by 33.46%, seen from the effective application of this learning media so that there is a significant increase in the development of children's initial reading ability with moderate criteria. It is also proven that there is an increase

from the n-gain test, namely obtaining a value of 0.60. Digital pop-up book learning media can be a medium of innovation for teachers, parents and future researchers in improving other children's early reading abilities and various variations of themes or by adapting to children's characteristics.

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