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The Effectiveness of Disability Picture Storybooks for Children 5-6 Years Old in Inclusive Kindergarten

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ABSTRACT

Efforts to foster acceptance of children with disabilities can be done by providing knowledge about disabilities through picture storybooks. Unfortunately, researchers have not found picture storybooks about disability in Indonesia that are aimed at kindergarten-age children, so this study aims to test the effectiveness of picture storybooks in increasing knowledge about disability in children aged 5-6 years. This research is a quasi-experimental study with mixed methods (quantitative and qualitative). The intervention was carried out by reading two picture story books, each read three times. Participants in this study were 28 non-disabled children aged 5-6 years and attending inclusive kindergartens. The measuring tool used is the achievement test to measure the increase in knowledge from the information provided. Quantitative results found an increase in knowledge about disability in non-disabled children aged 5-6 years. In addition, the qualitative results show that children can identify the characteristics of disabilities in the story content and are able to relate them to information that children already have. The implication is that teachers and parents can use picture storybooks to introduce disabilities to children aged 5-6 years in Inclusive Kindergarten.

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1. INTRODUCTION

The presence of children with disabilities has not been positively received by their peers, this can be seen from the interactions that arise between regular children and children with disabilities in activities in inclusive schools. Children with disabilities are seen as being shunned by their peers and not selected to be included in playing or learning activities together. In addition, other things can be seen when children with disabilities display different behaviors, getting negative responses from their friends. This can happen due to a lack of knowledge in regular children about the conditions of their peers who are different from themselves, so that the presence of different friends in their immediate environment cannot be received positively. Jaswandi and Kurniawati (2019) conducted research on acceptance of children with disabilities, obtained information that the level of early childhood acceptance of children with disabilities is in the medium acceptance level category. The level of acceptance is moderate or neutral describes a condition where the child has not shown acceptance or has not shown any rejection of children with disabilities.

One of the efforts made to foster acceptance of children with disabilities is to provide knowledge through illustrated stories about disabilities, such as the Special Friends program (Ostrosky et al., 2015). The Special Friends program is a program created to increase children's acceptance of persons with disabilities by giving children three types of experiences, consisting of direct experience, indirect experience, and building relationships with the child's family. Providing indirect experience using picture story books is important for regular children. This has been proven in the research of De Boer et al., (2014) who evaluated the provision of one of the interventions from the Special Friends program, namely reading picture story books to children in kindergarten. The results obtained in this study indicate that there is a change in children's attitudes to be more positive towards children with disabilities through reading picture story books about disabilities.

A picture story book is a book in which there are pictures and writing that tell a storyline with a theme suitable for children (Malu, 2013). Illustrations in picture story books are an important aspect of understanding stories and creating feelings of joy (Fang, 1996). The use of picture story books in learning is one way that can be done to raise awareness, understanding, appreciation or respect, and mutual respect for others (Golos and Moses, 2013; Agustina et al., 2018). In addition, the use of story books can also facilitate literacy learning in preschool-aged children (Wicks et al., 2020; Murphy et al., 2023). Picture story books are also used to provide new knowledge to children about disabilities. The use of picture story books about disability can provide a concrete picture of the concept of disability in early childhood, so that it can make it easier for children to understand the information provided. Unfortunately, picture story books containing information about disabilities do not yet exist in Indonesia, so in this study, picture story books about disability were compiled.

Based on the explanation that has been presented, the researcher wants to know whether picture story books are effective in increasing knowledge about disabilities in children aged 5-6 years? The picture story books compiled in this study will be read by the researchers to the children together in small groups. Picture story book reading will be carried out to children aged 5-6 years in inclusive kindergartens. The intervention consisted of three sessions of reading books on physical disabilities and three sessions on reading books on hearing disabilities. The aim of this intervention was to test the effectiveness of the picture story books in this study in increasing knowledge about disabilities in children aged 5-6 years.

2. METHODS

This research is a mixed research (quantitative and qualitative) with one group pretest-posttest design. The researcher took measurements three times, namely before, after, and one week after the intervention of reading picture books about disabilities (two books, each of which was read three times), by calculating the comparison of scores obtained by participants based on the questionnaires obtained and the results of observations during the research implementation. Data were processed using SPSS version 25 and descriptive analysis of the observations.

3. RESULTS AND DISCUSSION

3.1. Results

The participants involved in this study were all Kindergarten B students, totaling 40 children. Participant data was taken based on the participant criteria in this study, namely children with disabilities and participants who took part in a series of intervention sessions in full. During the intervention, from the first day to the sixth day and the follow-up session, the number of participants decreased. The reduced number of participants in this study was due to the absence of participants from school, both during book reading sessions and pretest, posttest or one week follow-up sessions. Therefore, the final number of participants whose data could be processed in this study were 28 children who were divided into four groups. The details can be seen in **Table 1**.

Table 1. Description of Research Participants

Group	Gender	
	F	M
Group 1	4	2
Group 2	4	3
Group 3	7	0
Group 4	5	3
Total	20	8

Note: F=Female; M=Male

The results of the significance test of the difference in the average score of knowledge about disabilities were divided into four groups, can be seen in **Table 2**.

Table 2. Wilcoxon Test Results (Quantitative)

	<i>Pretest dan Posttest</i>	<i>Posttest dan follow-up</i>	<i>Effect size</i>
Group 1	.027*	.480	0.77 ^m
Group 2	.026*	.285	0.81 ^m
Group 3	.041*	.109	0.38 ^w
Group 4	.011*	.317	0.90 ^m

Note: *Significant= p -value <0.05 . | m=moderate effect; w=weak effect
Signifikan= p -value $<0,05$. | m=moderate effect; w=weak effect

Based on **Table 2**, it can be seen that in all groups between the pretest and posttest there was a significant change regarding disability knowledge. This shows that there is an increase

in knowledge about disability in non-disabled children aged 5-6 years in one of the Inclusive Kindergartens in East Jakarta. Meanwhile, the posttest and follow-up testing in all groups did not experience significant changes. The effect of change in groups one, two, and four was moderate, which means there was an increase in knowledge about disability at a moderate level, while the effect of change in group three was weak, which meant an increase in knowledge about disability at a low level.

The researcher presents a graphical picture of a comparison of changes in quantitative scores to see the dynamics of the changes, The data obtained can be seen in the **Figure 1**.

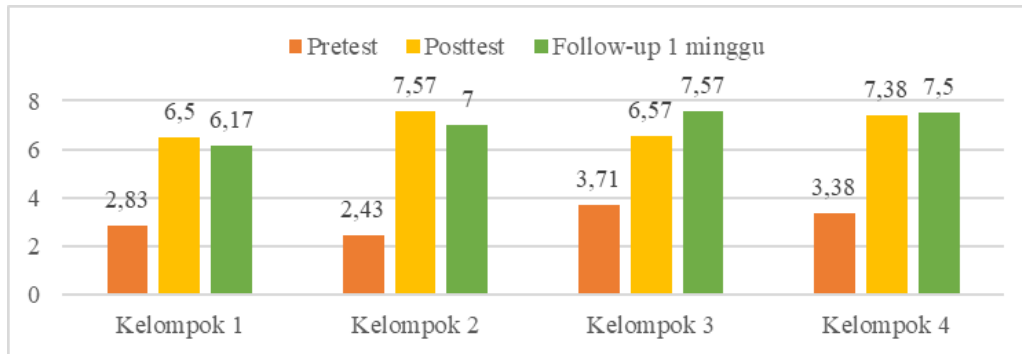


Figure 1. Graph of Increased Knowledge of Disabilities Score

Figure 1 shows that all groups of participants experienced an increase in knowledge about disabilities immediately after reading the picture book. All groups of participants experienced an increase in knowledge scores ranging from three to five points. Of the four groups, only the third group had a high average pretest score, while the other three groups had a low average pretest score. Furthermore, the increase in knowledge about disability continued until one week apart after the picture story books were read to all groups of participants. In two of the four groups, there was a decrease in scores at the one-week follow-up session, while the other two groups saw an increase in scores at the follow-up session compared to the scores at the posttest session.

Another thing that was seen in the analysis of quantitative data in this study was an increase in participant knowledge based on an increase in the number of participants who were able to answer correctly the questionnaire questions in the pretest, posttest, and follow-up sessions. There is one question on the aspect of knowledge regarding the characteristics of disabilities, namely question number five, which discusses the assistive devices used by children who have hearing difficulties. This question shows an increase in the number of participants who can answer correctly in all groups. In the pretest session there were no participants in all groups who could answer the question correctly. In the posttest and follow-up sessions there was a significant increase in the number of participants who could answer correctly. These results indicate that the knowledge provided in picture story books about the characteristics of hearing disabilities is effective in increasing children's knowledge. This effectiveness was also supported by the results of the significance test in each group which showed significant results in increasing scores before and after reading picture story books. Furthermore, researchers present observation data which can be seen in the **Table 3**.

Table 3. Observation Results of Participants' Responses from All Groups

Group	Knowledge Group Regarding Disabilities		
	Session 1	Session 2	Session 3
Group 1	<p>Book 1: Know the wheelchair as a disability aid</p> <p>Book 2: Don't know the characteristics of deaf disabilities, and don't know hearing aids</p>	<p>Book 1: Get to know the experiences of physical disabilities and the people around them. Cite the cane as a tool</p> <p>Book 2: Commenting on assistive devices, namely "that's a headset"</p>	<p>Book 1: Know how to use a wheelchair, such as helping push a wheelchair.</p> <p>Book 2: Able to recall the names of the assistive devices used and how to communicate with hand gestures</p>
Group 2	<p>Book 1: Seeing story readers and receiving information from picture story books</p> <p>Book 2: More interested in illustrations and storylines.</p>	<p>Book 1: Understanding the differences and similarities of characters with disabilities and non-disabilities, "one can run, the other uses a wheelchair".</p> <p>Book 2: Knowing the characteristics of hearing disabilities and how to communicate "must be slow and close".</p>	<p>Book 1: Mention that you can play together with children with disabilities</p> <p>Book 2: Retelling the plot and content of stories about physical disabilities, for example "He has a sore ear, use assistive devices".</p>
Group 3	<p>Book 1: Focus on illustrations in a picture story book.</p> <p>Book 2: Focus on story line illustrations in a picture story book</p>	<p>Book 1: Know about the assistive devices used "if you want to walk, you have to be pushed first".</p> <p>Book 2: Knowing personal experience, "If it hurts, treat the ear. I was sick yesterday, treated to the doctor ". Know hearing aids.</p>	<p>Book 1: Back story, what information is in the picture story book.</p> <p>Book 2: Know about assistive devices and the function of assistive devices properly, namely "put on the ear, but there is no sound".</p>
Group 4	<p>Book 1: Focus on illustrations only and listen to information about disabilities in the picture story book.</p> <p>Book 2: Focus on illustrations and character attributes only.</p>	<p>Book 1: Relates to personal experiences he has seen, such as seeing on the street and having pain in his feet.</p> <p>Book 2: Receiving and repeating information about hearing aids, used by characters</p>	<p>Book 1: Ways of disabled leaders using aids and additional information about "para games".</p> <p>Book 2: Able to remember the assistive devices used and how to communicate using hand gestures.</p>

Based on **Table 3**, it can be seen that when telling about the characteristics of physical disabilities and hearing disabilities. The participants' responses seemed to differ regarding the characteristics of the two types of disabilities. Participants seemed more familiar with the characteristics of physical disabilities than those with hearing disabilities. This is related to the assistive devices used by disabled leaders, in which participants have never seen hearing aids and people who communicate using sign language. This is different from figures with physical disabilities who cannot walk and use wheelchairs. Participants showed enthusiasm and responsiveness by mentioning other aids that could be used, namely sticks. Second, the third reading of each book shows that the participants have paid more attention to the story content than to the illustrations. Participants are able to retell the

content of the story to the storyteller. Participants explained that the characters in the story were not only based on the attributes used by the characters, but participants could identify characters with disabilities based on their physical characteristics, the tools used, the way the characters with disabilities move like them, and the way the characters with disabilities communicate.

3.2. Discussion

The picture books compiled in this study are intended to increase knowledge about disabilities in children aged 5-6 years. Based on the results of quantitative and qualitative data analysis in this study, it was seen that there was an increase in the average total score before and after the picture story books were read in each group. An increase in the average score occurred in all groups of participants, immediately after reading the picture book. Furthermore, the increase in knowledge of the participants in each group could last up to one week after reading the picture story books. The increase in knowledge in each group was supported by a significance test in each group which showed a significant change in knowledge scores after reading picture story books. This increase indicates that the picture story books compiled in this study are effective in increasing children's knowledge about disabilities.

Bhana et al., (2020) found that adults can facilitate young children to build effective communication through picture story books. In the picture story books there is vocabulary teaching which has an impact on increasing children's knowledge of personalized cases, such as recognizing children with disabilities. The magnitude of the effectiveness of picture story books to increase knowledge in this study was seen based on the results of measuring the effect size of each group. Three out of the four groups of participants who were involved in this study showed that picture story books had a fairly good effectiveness for increasing knowledge about disabilities, namely group 1, group 2, and group 4. This can be seen in the results of measuring the effect sizes of the three groups, including into the moderate effect category.

One group in this study, namely group 3, showed different results on the effectiveness of picture story books in increasing knowledge about disability in participants in group 3. In group 3, the result was that picture story books had a weak effect in increasing knowledge. These different conditions can occur due to the knowledge factor that participants previously had about disabilities. This assumption is seen based on the results of the average pretest score in group 3 which shows a higher score compared to the scores in the other three groups. However, based on the average posttest and follow-up scores in group 3, it shows that reading picture story books is effective in increasing knowledge and increased knowledge can last up to one week after reading picture story books. Walsh et al., (2017) in children who already have a high level of knowledge, the role of story books is only an adjunct to broaden the minds of young people who are intellectually gifted. Thus, it is very possible that the increase in knowledge is weaker than children who have no knowledge at all.

There is an increase in knowledge about disabilities by reading picture story books supported by several things which are the advantages of compiling picture story books in this study. One of them is the content of the stories which are arranged based on the nine elements of the criteria for story books about disabilities that are good and suitable for early childhood, as well as the procedures for carrying out picture story book reading activities.

Compilation of the content of a picture book about disability is based on nine elements of a good disability story book (Nasatir and Horns, 2003). Illustrations made in picture story books look the same age as the target audience, which is around 5 years old. Depict

characters according to their actual characteristics and provide special characteristics to disabled characters that can be observed by children easily and clearly, such as the use of wheelchairs, leg supports, hearing aids, and the use of sign language. The storyline is made simple by showing the active role of disabled characters in the story. The illustrations and text in the book illustrate how figures with disabilities participate in learning activities and play together with friends around them by using certain ways, such as using sign language when communicating and providing information about figures with disabilities by showing differences through positive words. Another element contained in the content of picture story books is the interaction that is built between characters with disabilities and their friends, who can become role models for readers to accept and help friends with disabilities.

Picture story book content that provides information about disabilities through clear illustrations, and expresses vocabulary so that it can make it easier for children to understand the information provided (Trussell et al., 2017; Wright, et al., 2020). This happens because giving pictures or visualizing new information to children is in accordance with cognitive abilities at this age, namely the pre-operational stage. At this pre-operational stage, children's cognitive abilities are still limited to observing concrete or visible things. In addition, conveying information about characteristics by providing comparisons can be easily accepted by children, because children at this age are already able to build self-identity through observing the similarities and differences between themselves and others.

The procedure for carrying out reading of picture story books which is carried out repeatedly, namely three times for each book helps children to better remember disability information, remember new vocabulary about disabilities, increase children's understanding of story content, and build analytical skills about stories (McGee and Schickedanz, 2007). This can be seen during the book reading session. In the second and third repetition of the reading session, participants can mention the character's name, type of disability, and the name of the assistive device used by the disability figure. In addition, children are able to analyze why figures with disabilities need assistive devices and how these assistive devices function. The duration of each reading which lasts for 15-20 minutes also has an influence on effectiveness, which is in accordance with the ability of children at this age to maintain attention.

This relates to the process that children go through in receiving new information which is part of the child's learning process. The learning process that occurs in children begins with receiving new information about disabilities, which then children try to understand this information through the pictures in the picture book. This is followed by children processing the new information in relation to the information and experiences they already have. This process can be seen in the results of observations of the comments that children give during story reading, such as "Use a stick like Ato at Grandma's house" and can also be seen when the child adjusts the information he already has with the information he has just received about disability, that is when the child associates the headset with like a hearing aid, but no sound. The process that the child goes through helps the child understand disability. It can be seen when children are able to retell stories in books and understand the differences between non-disabled and disabled characters by giving appropriate responses when reading books or telling stories, such as "You can play together but encourage you to play" and "If you want to play up close, keep moving his hand".

The division of the children into small groups in each class is intended to make it easier for the children and the storyteller to build intensive interaction during the storybook reading. The close distance between the storyteller and the child, so that when the child is distracted the focus of the storyteller can help the child to refocus by calling his name and

re-engaging in storytelling activities, such as "according to Z, why is Egi in this book using a wheelchair?". In addition, the interaction did not only occur between the child and the storyteller, but also between group members when they gave each other responses from comments from their group mates, such as "oh, the one in orange is Sofi". Small groups also provide opportunities for children to be able to see pictures in storybooks clearly. This is proven by Morrow and Smith (1990) that the number of group members in reading books using the interactive reading method has an effect on the understanding and interaction that occurs between the storyteller and the listener. Children who are in small groups show more active interaction with the storyteller by providing responses and questions. In addition, children in small groups have a better understanding than children in larger groups.

Another thing that also supports an increase in knowledge in children is the interaction that is built between children and their closest environment besides school, namely the family. It can be seen from the observation of children's comments that appear when reading picture books, children provide responses regarding better disability information, namely "He (Egi's character) can run like in games" and regarding doctors who treat ear pain during reading books on hearing disabilities. This is explained in Bronfenbrenner's theory that the quality of interaction between children and their environment can have an influence on children's development in processing information. Based on this, it can be seen that increasing knowledge in children does not only occur through intervention, but there are also other factors that can influence it.

Diamond and Hsiao (2019) found that reading picture story books to young children can improve problem solving skills. Children understand and are able to analyze how children with disabilities find solutions to overcome their problems. In addition, children also understand whether the solutions provided are effective or not to help children with disabilities, such as using wheelchairs, and so on. Thus, the activation of problem-solving abilities in early childhood can develop a more independent quality of life in the future and friendship skills among them.

The limitations of this study are as follows, maintaining group conduciveness, comparison of the ratio of storytellers and participants in one group, and limitations on sample characteristics. Based on the results of observations of participants' responses and comments during the intervention, it can be seen that there was a feeling of boredom that arose in the participants during the third session of repeating the reading of the picture book. This situation can influence the results of the research, because when children feel bored, it will interfere with the child's ability to focus on reading picture book reading activities. This can indicate that children are less interested in picture story books. In addition to the feeling of boredom that arises, the number of group members which amount to 10 children with one facilitator (narrator) is often found in one of the children in the group who is not focused when reading books. The number of 10 participants in one group with one storyteller, is not able to optimize a conducive situation in reading picture story books at this age.

Conditions that are not conducive are also related to the narrator's sitting position in the group that uses classroom tables and chairs. The narrator is on the side of the table where it is difficult to reach the group members opposite him, so the narrator moves to a seat on the side of the middle table so that the child can be closer to the narrator and can control the child to stay focused while reading the picture book and discussing the story. In another group, the storyteller sat on the carpet by forming a circle, which started smoothly and then became unconducive when one member of the group scrambled to get closer to the

storyteller and covered the other members, so the storyteller changed his sitting position by sitting using a chair so that all the children in the group could see books and storytellers.

Another limitation in this study related to the reading of picture story books by four storytellers can also be an influencing factor. The preparation of the storytelling team in preparing for the reading of the picture story book which is only carried out in a brief briefing can lead to the possibility of bias when reading the picture book. This condition can occur due to the possibility of differences in the abilities of each storyteller in reading picture story books to children. In addition, the characteristics of the sample and the number of samples involved in this study. The research was conducted only in the same kindergarten, thus making the sample characteristics less diverse or homogeneous. The limited number of samples also affected the generalization of the picture story book effectiveness test in this study.

4. CONCLUSION

Based on the results of measuring and analyzing knowledge about disabilities in this study, it can be concluded that using picture story books that have been compiled in this study is effective for increasing knowledge of physical and sensory disabilities in children aged 5-6 years. For future researchers, optimizing testing the effectiveness of picture story books to increase knowledge about disabilities can be done on a more heterogeneous sample, with a larger number of samples, and in various types of schools. In addition, seeing the results of the effectiveness of this picture story book to increase knowledge about disabilities, similar research can be carried out by developing other disability themes that will be presented, such as types of visual disabilities, types of speech disabilities, autism, down syndrome, and others. The implication of this research is that picture story books can be used at school or at home. For use in schools, teachers can read this picture story book to new students, so that students get information about disabilities. For use at home, parents can read this picture story book to their children to provide information about disabilities.

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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