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Development of Story Books Containing MELESAT (Mathematics, Existence, Literacy, Engineering, Science, Art, Technology) to Improve Literacy Skills among Group B of Early Childhood Education

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ABSTRACT

The purpose of this study was to develop a storybook containing Mathematics, Existence, Literacy, Engineering, Science, Art, Technology (MELESAT) to improve literacy skills among group B of early childhood education and to test the feasibility of designing a storybook containing MELESAT. This type of research is a Research and Development with Pretest - Posttest One Group Design, using the ADDIE model which includes five stages, namely Analysis, Design, Develop, Implementation, and Evaluate. Subjects are children aged 5-6 years, including group B early childhood education totally 20. The instrument used a validation questionnaire and literacy tests. Results of this research indicate that the validation of the material obtained 3.04 of 4, validation of book design obtained 2.55 of 4 and validation of the media obtained 2.89 of 4. The effectiveness based on giving pretest and posttest to students totaled 20 subjects. The results showed that the pre-test score of 57% was developing as expected, and 43% was starting to develop. Post-test scores showed 7.5% progressed beyond expectations, 87.5% progressed as expected, and 5% started to develop. Through the content, design, and use of MELESAT books, there is an increase of literacy skills of children aged 5-6 years including group B early childhood education.

INTRODUCTION

Every individual experiences development from early childhood to adulthood. At an early age occurs in the age range 0-6 years. At this age is considered an important phase in providing stimulation in order to achieve optimal development (Anida & Eliza, 2020). Therefore, early age is considered a golden age, which is the most appropriate period to stimulate individual development. Research in the field of neurology reveals that 50% of a child's intelligence is formed during the first four years of a child's life. In this phase the brain develops very rapidly (Khaironi, 2018). However, children's potential and intelligence can develop if the stimulation is done properly at an early age (Fitriani & Adawiyah, 2018). Giving stimulation is an effort to encourage children to develop, giving good stimulation to children who are able to achieve various aspects of development well (Fitriani & Adawiyah, 2018). Giving stimulus to children can be given with early childhood education.

Changes in educational conditions for approximately two years due to the Covid-19 pandemic have lagged the competence of students. Reading literacy skills in children decreased by 91.6% during BDR. The trend of internet use among children during the pandemic increased by 69.3% (Adibelli & Sumen, 2020). The results of the Program for International Student Assessment (PISA) survey released by the Organization for Economic Co-operation and Development (2019) stated that the literacy ability of

science, mathematics and reading Indonesian children in 2018 was ranked 71st out of 77 countries and has decreased since 2018. In other words, Indonesia is currently experiencing learning backwards and a literacy crisis which will have an impact on the quality of human resources. Four competencies that students must possess in the 21st century are called 4C, namely Mathematics, Existence, Literacy, Engineering, Science, Art and Technology.

Literacy culture is very important to be applied from an early age in order to advance a nation. The basic competencies in aspects of early childhood language development based on Regulation of the minister of education and culture number 146 of year 2013 are that children are able to understand and demonstrate receptive language (listening and reading), expressive language (expressing verbal and non-verbal language) and early literacy through play and various forms of work. One effort that can be done is to increase interest in reading in children, through fun activities, namely playing while learning (Hayati et al., 2022). Cultivating an interest in reading in children is not easy, it is necessary, interesting reading media, various project-based literacy activities, continuity of reading habits at home and at school, as well as the ability of teachers to choose and develop reading so as to stimulate children to think higher level or Higher.

There are several main characteristics of a good storybook, including 1) having an inspiring power, sparking children's interest to read it and completing the reading; 2) changeable, good children's reading books must support all aspects of children's development, reading books makes readers who do not know become aware, those who know become understand, who understand become able to do; 3) Attractive means that the book must be attractive in terms of design and graphics or the context of the packaging. The allure of a children's story book can be seen from the title, typography, colours, and illustrations in the book. MELESAT is a learning content that integrates seven fields of science which include Mathematics (concepts of numbers, geometry, size, comparison and classification), Existence (religious values, morals, customs), Literacy (new vocabulary, early literacy), Engineering (method, efficiency, effectiveness), Science (trials, natural phenomena and social environmental conditions, changes in objects), Art (composition, colour, texture, rhythm, time, sound, motion) and Technology (tools, assistive devices, basic tools, machines, simple technology tools) (Mengmeng et al., 2019). Currently, children's story books have not been widely developed to fulfil the full MELESAT element and are only used as an introduction to activities at the beginning of learning to in still moral, social and character education values contained in the content of the story (Nisa & Halifah, 2021).

The results of research by Astuti et al. (2015) state that with the right teacher guidance, the learning process provides many opportunities for children to develop 21st century skills as a provision for children's lives in the future. The children's story book developed in this study is a picture story book with MELESAT content which is created between pop ups (presenting images in three dimensions) and lift the flap book or also called a window book that provides hidden information behind the picture. Picture story books can help students read and increase their vocabulary (Nurgiyantoro, 2018). In addition, Qonita (2018) it is expected to be able to improve children's language skills, foster interest in reading and imagination, children have four competencies including critical thinking in solving problems, creative, able to communicate and collaborate. The concept of a storybook containing MELESAT will

support the implementation of the Merdeka PAUD Curriculum which uses a literacy approach (reading books) in the learning process (Rezaieka et al., 2022).

Based on previous studies, it was shown that there was an increase in the ability of character education values, social, religious and moral literacy of early childhood through story books. However, no one has combined children's story books with MELESAT content, meaning that the story books developed have elements of mathematical stimulation, existence, literacy, engineering, simple science, art or simple art and technology. When a child reads the story book, the child not only learns to read a story, but there is stimulation for the child to be actively and creatively involved in carrying out project-based activities with various additional media that have been prepared by educators, for example various loose parts materials that are around (Rukiyah et al., 2022). Therefore, this study aims to develop storybook containing Mathematics, Existence, Literacy, Engineering, Science, Art, Technology (MELESAT) to improve literacy skills among group B of early childhood education and to test the feasibility of designing a storybook containing MELESAT.

The seven components in the MELESAT concept support children in carrying out project-based learning (PBL). PBL is an effective method to improve science academic achievement of children aged 3 to 14 years, including knowledge retention, conceptual development, and attitudes (Merrit, et al., 2017). Project-based learning can increase global awareness (Jhonson, et al., 2019). This learning is able to spark interest in reading, designing activities, conducting exploration activities and concluding or reflecting on the meaning of playing activities, thereby indirectly improving language skills in children aged 5 to 6 years including children being able to understand and show receptive language (listening and reading), expressive language (expressing verbal and non-verbal language) and early literacy through play and various forms of work. In addition, the collaboration carried out by children can strengthen the sense of brotherhood, humanity, differences, ethnic and cultural diversity and global awareness.

RESEARCH METHOD

General Background

This development research uses the ADDIE development model. The ADDIE model is a development model consisting of 5 stages, namely: Analysis, Design, Development, Implementation and Evaluation. The analysis phase consists of two activities, namely analyzing the needs and components of children's story books, conducting focus group discussions between the development team and colleagues, early childhood education practitioners and stakeholders in early childhood education. The design stage starts from determining the selected core competencies, determining learning objectives, developing children's story book ideas with MELESAT, writing drafts, revising, editing. The next stage of development is developing a storybook containing MELESAT and publishing the manuscript into a book as well as validating material experts to find out whether the selected material can achieve the learning objectives and is in accordance with the MELESAT content that is appropriate in the developed story (Wahyuni & Purnama, 2020). Validation of design experts to find out whether the design of the story book, cover, story content is in accordance with the developed storyline. The next stage is implementation at this stage which is carried out is a trial use in small groups (Watini, 2020; Setiawan et al., 2022). The evaluate stage is carried out at each stage of

development, the aim is to find out the shortcomings of the story book and improve it according to expert and user input.

Participants

The targets of this development research trial were teachers and 20 students in group B aged 5-6 years at 3rd Pandaan Kindergarten, Pasuruan Regency, Indonesia.

Instruments and Procedures

The instrument used in this research is the instrument used a validation questionnaire and literacy tests. Before obtaining the final product, several stages were carried out so that the storybook product containing MELESAT could be said to be feasible. There are also stages that are carried out are validation by expert judgment in the field of material, design, and learning media. After validation, revisions were made according to input from experts, so that the product was declared feasible (Widayati et al., 2020). The next step is a small group trial, based on the results of the trial, improvements were made to the storybook containing MELESAT. The final step is to test the effectiveness of storybooks with MELESAT content on children aged 5-6 years who are included in group B Early childhood education, at 3rd Kindergarten Pandaan, Pasuruan. The measurement used is an instrument for early childhood literacy skills.

Data Analysis

The results of the expert review were carried out by expert judgment consisting of material experts working in the field of early childhood, design experts and learning media experts on product development. Validation is carried out on the initial media product to obtain data about the quality of the product components. The number of questionnaire items for the material expert's assessment of the quality of the media is 12 items. Each item of the questionnaire used consists of a range of 1-4 with score interpretations, namely: a score of four (very good), a score of three (good), a score of two (good enough), and a score of one (not good). The small group trial aims to obtain information that will be used in improving the product in the next revision. The trial stage was carried out on 4 children at PGRI 3 Pandaan Kindergarten. From the results of the small group evaluation, data were obtained with questionnaire assessment criteria on literacy skills. Assessment criteria with four value scales of 4 (Developing Very Well), 3 (Developing Well), 2 (Starting Developing), and 1 (Not Developing).

The field trial was conducted with 20 children, which was adjusted to the number of children in class B at 3rd Pandaan Kindergarten. The main trial process is carried out like a small group trial, only the population or number of children is more than the small group trial. Children are given children's story books with MELESAT content and given intervention with learning for five meetings. This is done because it is to identify the shortcomings or weaknesses in the story book containing MELESAT. In addition, the criteria for field trials before the intervention was carried out were pre-tests to see the child's initial ability to read early, mathematical ability, existence, literacy, engineering, simple science, art and simple technology in children through existing story books (Tatminingsih, 2022).

RESULTS AND DISCUSSION

Based on the results of the questionnaire data analysis of the assessment of the three experts on the feasibility of the developed module product. It shows that the learning product is feasible to be used as a component of learning materials in developing language skills in children aged 5 to 6 years. However, there are several suggestions from the three experts to make revisions so that the learning products developed are even better.

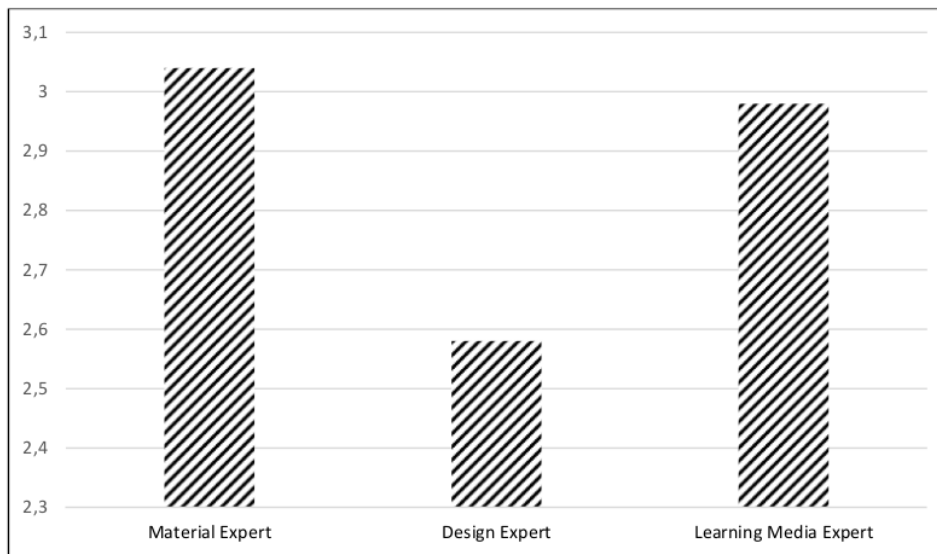


Figure 1. Pretest results of feasibility test

Figure 1 shows that the results of material expert validation show a value of 3.04 out of 4 values. The design expert's validation score showed 2.55 out of 4, while the learning media expert showed a score of 2.89. Based on these results, revisions were made. Based on the results of the revision, the next stage was carried out, namely small group trials. The results of the small group trial show data as shown in Figure 2.

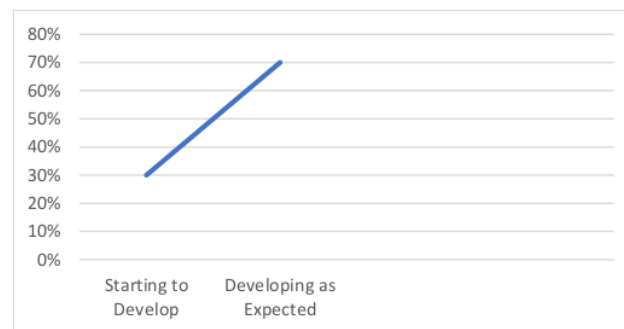


Figure 2. Pretest results of feasibility test

Based on the results of the small group test, it can be concluded that children's language development through reading storybooks containing MELESAT 75% is

developing well. This means that children develop well in reading simple words and sentences, understanding the words they read (Nation, 2019; Brysbaert, 2019; Sattorovna et al., 2019). The other side, 25% begin to develop, meaning that the teacher provides guidance, more support when children read story books.

The results of the feasibility test for storybooks containing MELESAT are pretest data, 57% of children are in the well-developed category in literacy skills and 43% of children are in the starting developing. The results are in accordance with the Figure 3.

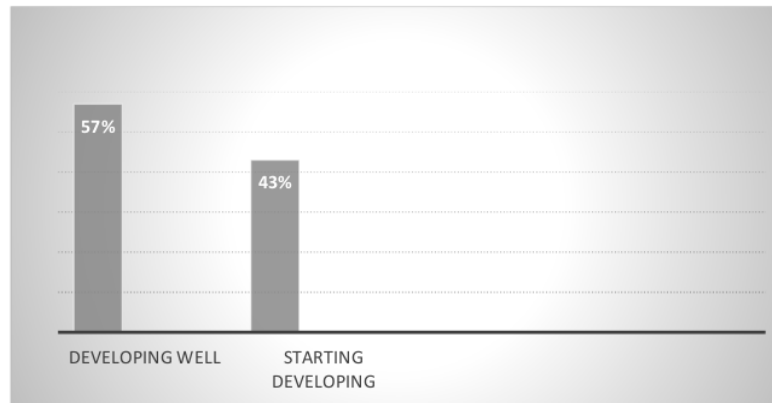


Figure 3. Pretest results of feasibility test

Based on the post-test results, there were 5% of children developing very well, 87.5% developing well and 7.5% in the stage of starting to develop. The post test results are illustrated as shown in Figure 4.

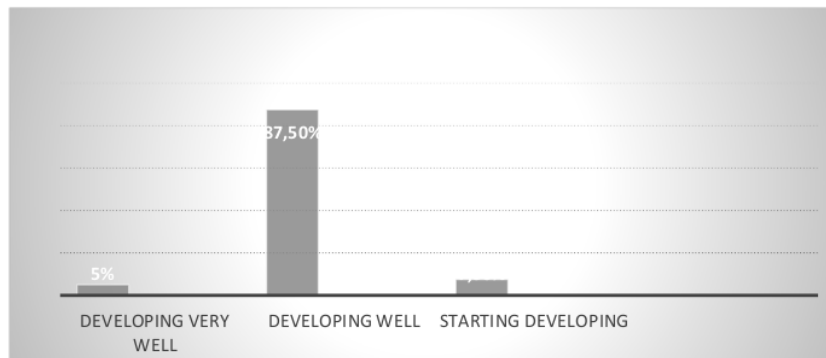


Figure 4. Posttest results of feasibility test

The large number of children who have literacy skills in the well-developed category as shown in Figure 3 & 4 is because the story books are developed according to their level. In addition, in line with Waldron (2018) and Wong & Neuman (2019) that one form of effort to instill reading literacy learning in children is to use story books. Story books will really help children learn the various information contained in the book and the most important thing for children to want to read is the child's interest in reading. Children's learning interest can be increased through story books because children are more interested in participating in learning (Eggleston et al., 2022; Mawardani et al.,

2021; Sartono & Irawati, 2019). Through story books, children can more quickly catch the words contained in the story.

CONCLUSION

Based on the results of the research and discussion previously described, it can be concluded that material validation was obtained at 3.04 out of 4, book design validation was obtained at 2.55 out of 4, and media validation was obtained at 2.89 out of 4. The effectiveness of children's story books with RPED can be seen based on pretest and posttest administration to students totaling 20 subjects, and the pre-test score results obtained were 57% developing as expected and 43% starting to develop. The post-test scores showed that 7.5% progressed beyond expectations, 87.5% developed as expected, and 5% started to progress. This research is limited to the development of a story book containing MELESAT to develop the language skills of group B children at Kindergarten 3rd Pandaan. Children's storybooks with MELESAT include elements of mathematics, existence, literacy, engineering, simple science, art, and simple technology. For future researchers, it is hoped that they can evaluate the design and conduct research to determine the effect of children's storybooks with MELESAT content on other aspects of children's development.

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