

LOGIC BOOK LEARNING MEDIA TO STIMULATE THE DEVELOPMENT OF LOGICAL THINKING IN CHILDREN AGED 4-5 YEARS

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ABSTRAK: Berpikir logis merupakan salah satu perkembangan pada anak usia dini yang harus di stimulasi secara optimal, sebagai kesiapan anak untuk menuju jenjang selanjutnya, untuk mencapai stimulasi perkembangan yang sesuai dengan harapan maka perlunya media sebagai penyampai pesan yang menarik dan bervariatif sehingga dapat menumbuhkan minat belajar anak. Pada penelitian ini menggunakan jenis penelitian pengembangan atau R&D dengan menggunakan model pengembangan ADDIE yaitu model pengembangan yang memiliki 5 tahap diantaranya adalah *Analysis* (menganalisis masalah yang ada di lembaga), *Design* (mendesain produk sesuai dengan temuan di lapangan), *development* (mengembangkan produk sesuai dengan desain yang dibuat) serta melakukan uji coba produk yang telah dikembangkan yaitu uji validasi ahli media dan uji validasi ahli materi sehingga didapatkan hasil kelayakan media *Logic Book* dengan kategori sangat layak untuk diimplementasikan pada anak usia 4-5 tahun dalam menstimulasi perkembangan berpikir logis dengan persentase kevalidan 92% dari ahli materi serta 92% dari ahli media. Selanjutnya adalah tahap *Implementation* (penerapan media pembelajaran) yang dilakukan uji coba kelompok kecil serta uji coba kelompok besar untuk mengetahui pengaruh media pembelajaran *Logic Book* dalam menstimulasi perkembangan berpikir logis. Kemudian dilakukan *Evaluation* dimana pada tahap ini peneliti mengevaluasi angket hasil penilaian dan mendapatkan hasil bahwa media pembelajaran *Logic Book* sangat layak untuk diimplementasikan pada anak usia 4-5 tahun dalam menstimulasi perkembangan berpikir logis, dengan nilai persentase 87.5% dari uji coba kelompok kecil dan 90% pada uji coba kelompok besar. Sehingga disimpulkan bahwa media pembelajaran *Logic Book* layak dan dapat menstimulasi perkembangan berpikir logis anak usia 4-5 tahun di TK Darma Wanita Desa Mojodeso.

Kata Kunci: *Media Pembelajaran, Logic Book, Stimulasi Perkembangan Berpikir Logis*

ABSTRACT : *Logical thinking is one of the developments in early childhood that must be stimulated optimally, as a child's readiness to move to the next level, to achieve developmental stimulation that is in line with expectations, the need for media as a conveyor of interesting and varied messages so that it can foster children's interest in learning. This research uses a type of development research or R&D using the ADDIE development model, namely a development model that has 5 stages including Analysis (analyzing existing problems in the institution), Design (designing products according to findings in the field), Development (developing products in accordance with designs created) as well as carrying out product trials that have been developed, namely media expert validation tests and material expert validation tests so that the results of the feasibility of the Logic Book media are in the very suitable category for implementation in children aged 4-5 years in stimulating the development of logical thinking with a percentage of validity 92% of material experts and 92% of media experts. Next is the Implementation stage (application of learning media) which is carried out by small group trials and large group trials to determine the effect of Logic Book learning media in stimulating the development of logical thinking. Then an evaluation was carried out where at this stage the researcher evaluated the assessment questionnaire results and obtained the results that the Logic Book learning media was very suitable to be implemented in children aged 4-5 years in stimulating the development of logical thinking, with a percentage value of 87.5% from small group trials and 90% in large group trials. So it is concluded that the Logic Book learning media is feasible and can stimulate the development of logical thinking in children aged 4-5 years at the Darma Wanita Kindergarten, Mojodeso Village.*

Keywords: *Learning Media, Logic Book, Stimulates The Development of Logical Thinking*

INTRODUCTION

Early childhood education is very important as a learning foundation that will

develop and optimize children's potential, as stated in Law No. 20 of 2003 article 1 point 14 concerning the national education system, early

childhood education is a development effort that aimed at children from birth to six years of age which is carried out through providing educational stimulation to help physical and spiritual growth and development so that children are ready to enter further education. (Indah et al., 2019) Education for early childhood can be achieved through several preschool levels such as Child Care (TPA), Play Group (KB), Raudlatul Athfal (RA), Kindergarten (TK) and other equivalent institutions.

In preschool education, children learn various kinds of stimuli in a fun way, namely through playing. Playing is a need for children, through play children are free to express and explore. (Asmariani, 2016) As a support for children's play activities, concrete learning media are needed as stated by Piaget that children need to learn through concrete objects, because children Early childhood is in the transition process from the preoperational phase to the concrete preoperational phase. (Suyanto, 2005) Therefore, real learning media is needed so that children can observe directly and enrich children's learning experiences.

Concrete learning media can make it easier for children to understand what is happening. delivered by the teacher. Learning media is everything that is used to convey messages, manifest thoughts, feelings, desires, as an intermediary for communication between teachers and children so that the teaching and learning process becomes smooth. (Andriantoni, nd) Apart from that, learning media is everything both physical and technical in nature. a learning process that makes it easier for teachers to deliver learning material that has been formulated as a means of stimulating children. (Nurfadhillah & Ningsih, 2021)

Stimulating development in children is very important to develop. One of the developmental stimuli that needs to be stimulated is cognitive development, because cognitive development is the basis for intelligence development. According to Piaget; Cognitive development occurs through a process called adaptation. (Aisyah, 2008) for this reason, cognitive development must be stimulated optimally because it is related to the child's ability to solve everyday problems. One part of cognitive development is the ability to think logically.

Logical thinking abilities in early childhood include; the ability to draw conclusions, predict existing possibilities, predict based on two variables, determine variations of several variables, make analogies and draw conclusions from several cases. (Yanti, 2021)

In developing the Logic Book learning media, researchers were inspired by the Bussy Book learning media, However, the researchers added other materials to perfect the design developed in making the Logic Book, namely using heart foam to make the media look more sturdy and durable. Apart from that, the researchers also stitched the media and the components inside. In developing Logic Book media, researchers focused on games to stimulate the development of logical thinking in children aged 4-5 years.

The development of the Logic Book learning media aims to overcome problems that exist in the institutions studied, where there is a lack of media to stimulate the development of logical thinking in children aged 4-5 years, which causes the stimulation of logical thinking development to be less than optimal. On this basis, the researchers took the title of developing Logic Book learning media to stimulate logical thinking skills in children aged 4-5 years at Dharma Wanita Kindergarten, Mojodeso Village, Kapas District, Bojonegoro Regency, because this media can stimulate the development of logical thinking in children.

METHODS

This research uses research and development methods, according to Sugiono research and development is a research method used to produce a particular product, and test the effectiveness of the product. In this research, researchers used the ADDIE development model developed by Dick and Carry. The following are the steps in the ADDIE development model, namely Analysis, Design, Development, Implementation (implementation), Evaluation (evaluation). Source: (Sugiyono, 2013).

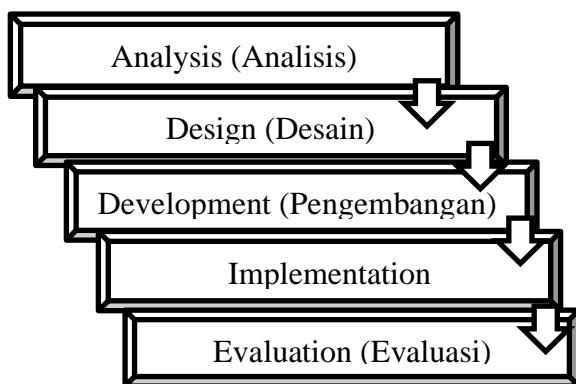


Figure 1. ADDIE stages

A. Analysis

At this stage, it is carried out to determine the initial conditions of the child and the needs required by the institution in order to achieve optimal developmental stimulation.

B. Design

At this stage the researcher formulates learning objectives that are specific (detailed), measurable (measurable), applicable (relevant) and realistic (real). The steps for determining the design in making learning media are preparing lesson plans that will be carried out in learning, designing and compiling material that will be taught according to the level of achievement of the development of logical thinking, preparing tools and materials that will be used for making Logic Book learning media, studying use of the media to be developed and determining the shape and size of the media to be developed.

C. Development (development)

Namely the process of turning a design into reality, in this stage the product, namely the Logic Book learning media, will go through trials before being implemented and becoming evaluation material. This is done through media expert validation tests and material expert validation tests.

D. Implementation

Namely concrete steps in implementing learning media that have been created according to their roles and functions, the implementation

aims to guide children to achieve competence, be able to solve problems and guarantee learning outcomes for children and at the end of learning children have competence-knowledge, skills and attitudes which is required. In this implementation, researchers conducted product trials in two stages, namely small group trials and large group trials, in order to find out whether the learning media had an effect in facilitating children's understanding.

E. Evaluation

Namely disseminating the results of applying Logic Book learning media, whether it is in accordance with the initial objectives or not, evaluation is carried out to provide value to the learning program which includes several things, namely; the child's attitude towards overall learning activities, increasing competence in the child (the impact of participation in the learning program) and the benefits that the school obtains from increasing competence in children.

Data collection techniques in this R&D research are through feasibility assessment techniques and questionnaires. The feasibility assessment is carried out to assess the suitability of the learning media, while the questionnaire assessment is to determine the suitability of the media when implemented with children. The results of the media and material expert feasibility assessment will be calculated using the following formula; *suharsimi Arikunto, 2006, hal. 270*

$$P = \frac{\text{research score}}{\text{maximum score}} \times 100$$

Percentage (%)	Category
0% - 20%	Very unfit
21% - 40%	Not worth it
41% - 60%	Fairly decent
61% - 80%	Decent
81% - 100%	Very decent

Sumber: Riduwan (2009)

Next, a questionnaire assessment was carried out which aimed to determine the suitability of the learning media in stimulating the development of logical thinking in children using

the Logic Book learning media. The assessment of the suitability of media to stimulate the development of logical thinking in children aged 4-5 years uses the following formula; (*suharsimi Arikunto, 2006, hal. 270*)

$$P = \frac{\text{research score}}{\text{maximum score}} \times 100$$

The results of the calculations will be seen in the following assessment table, so that the percentage value of the suitability of the media implemented for children is obtained;

Percentage (%)	Category
81-100	Very Good
61-80	Good
41-60	Fairly Good
21-40	Poor
0-20	Not Good

Sumber: *Tampubulan S Penelitian Tindakan Kelas Sebagai Pengembangan Profesi Pendidik dan Kilmuan, Jakarta: Erlangga, 2014.*

RESULTS AND DISCUSSION

The development of Logic Book learning media is in line with the stages in the ADDIE development model, namely there are 5 stages in the research and development process, namely as follows.

A. Analysis

At the analysis stage the researcher made observations at the Dharma Wanita Kindergarten in Mojodeso Village on December 29 2022, namely an analysis of teacher performance, according to Ideswal et al. that teacher performance is the teacher's success in carrying out duties as an educator in the teaching and learning process at school. From the results of the observation, it was found that the teacher's performance was good in the teaching and learning process, but the choice of learning media for children tended to use LKA (children's worksheets) so that the stimulation of development was not optimally stimulated. Next, research analyzed the needs of children and the results showed that the stimulation of the development of logical thinking in children less stimulated considering the lack of interesting learning media as a means of conveying messages.

B. Design

Next, the researcher carried out a design of learning media after finding problems in the institution, namely learning media that was less varied and less than optimal stimulation of the development of logical thinking in children aged 4-5 years at the Dharma Wanita Kindergarten. The design of learning media is adjusted to the curriculum implemented in the institution and chooses attractive colors and materials that are safe for children, as well as image shapes on the media that can foster children's interest in learning. The tools and materials used in making Logic Book learning media are as follows.

C. Development (development)

At this stage the Logic Book learning media is processed into a product that will be implemented in children. At this stage, validation tests are also carried out by material experts and media experts. At the first stage of the material expert validation test, the validity percentage result was obtained, namely 52% with the learning media material category being quite feasible, but the validator wanted revisions. Next, a learning media validation test was carried out by media experts, so that the results were obtained, namely a validity percentage of 52% with the media validation category being quite adequate but also needed to be further refined. The results of the two material experts and media experts in stage one became the researcher's reference for revising the Logic Book learning media product, as well as carrying out stage two validation tests so that the results obtained from the validation of material experts with a percentage value of 92% and media experts 92% and obtained the media validation category. very worthy. The following is a picture of the logic book learning media.



Figure 2. Final product results *Logic Book*

D. Implementation

Next, the researcher implemented the Logic Book learning media to determine the level of suitability of the media if implemented in children aged 4-5 years in stimulating the development of logical thinking. In carrying out the implementation, researchers carried out 2 stages, namely a small group test consisting of 6 children with random samples and a large group test consisting of 15 children. In the small group test, a validity percentage score of 87.5% was obtained in the very good category. Then a large group test was carried out to obtain a validity percentage result of 90% in the very good category. The following are pictures of small and large group trials;



Figure 3. Small Group Test



Figure 4. Large Group Test

E. Evaluation

The final stage of developing the ADDIE model is evaluation, at this stage the Logic Book learning media which has been implemented for children aged 4-5 years at the Dharma Wanita Kindergarten in Mojodeso Village will be evaluated by the class teacher, whether the

learning media Logic Book meets initial expectations or not. In this evaluation, satisfactory results were obtained that the Logic Book learning media can stimulate the development of logical thinking in children aged 4-5 years so that teachers hope that new learning media innovations will make it easier for teachers to stimulate other developments.

CONCLUSIONS

Based on the development of the Logic Book learning media, researchers used a type of development research or R&D (Research And Development) using the ADDIE development model which has five stages in the development process, namely: 1. Analysis, where at this stage the researcher carries out performance analysis and needs analysis. From the results of observations at the Dharma Wanita Kindergarten institution, Mojodeso Village, Kapas District, Bojonegoro Regency and the results obtained from the analysis of teachers' work during learning, they tend to carry out learning using LKA and there is a lack of media innovation provided by teachers in conveying learning messages. And from analyzing children's needs, it was found that there is a lack of media in stimulating the development of logical thinking in children aged 4-5 years. 2. Design, where the Logic Book learning media is designed to stimulate the development of logical thinking in children aged 4-5 years. 3. Development, namely the stage of media development that is adapted to the design that has been created to stimulate the development of children's logical thinking. 4. Implementation, namely the application of learning media to children aged 4-5 years at the Dharma Wanita Kindergarten in Mojodeso Village. 5. Evaluation, the final step is evaluation based on the percentage of media that has been implemented for children.

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