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## DEVELOPMENT OF WATER TUBE MEDIA ON THE THEME OF THE UNIVERSE TO IMPROVE FINE MOTOR AND LANGUAGE DEVELOPMENT IN EARLY CHILDREN

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*The purpose of the research is analyze the feasibility and effectiveness of the water tube media in developing soft motor skills and children's language. This development research use the Dick & Carey research and development model. The result of the development are water tube products to develop soft motor skill and children's language in group A. The development of the media includes material about the introduction about charasterictic water. The study was conducted in class A Bina Prestasi Surabaya. Based on the formative test to experts and children obtained qualitative and quantitative data, qualitative data are suggestions from experts and quantitative data in the form a percentage of child observasion sheets. The percentage of asesment formative tests experts and also children, the water tube media is feasible and effective to be used in learning to develop soft motor skills and children's language in group A Bina Prestasi Surabaya. Based on the results of this development research, it can be concluded that the water tube media is feasible to use in improving the development of fine motor and language development in early childhood and is also effective and practical to use in improving fine motor and language development in early childhood. This is proven by testing the hypothesis used, namely the output table "test*

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*statistics" shows Asymp. Sig. (2-tailed) is worth 0.000. because the value is  $0.000 < 0.05$ , it can be concluded that it is accepted, meaning that there is a difference in scores between before and after being treated with water tube media..*

**KEYWORDS**

Water Tube Media, Soft Motor Skills, Language



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## INTRODUCTION

Early childhood education is an education that provides the basis for a child's education later in life. Early childhood education is an effective time to develop various aspects of child development that include the development of physical-motor skills, cognitive, language, social-emotional, art, morals, and religious values (Suryana, 2018). In early childhood, efforts to develop all children's potential must begin to be implemented so that the growth and development of children is achieved optimally (Huliyah, 2017).

Early childhood is children in the age range of 0-8 years, covered by educational programs in child care parks, family child care home, early childhood education both private and public (Anhusadar, 2013). The group of early childhood becomes 3 groups, namely children at the age of infants up to 2 years, children aged 3-5 years, and children aged 6-8 years (Susanto, 2017). The division of children based on age can affect the rules in implementing the curriculum in education and childcare.

Early childhood has different characteristics in each individual, but in general early childhood has characteristics, namely; (a) each child is unique; (b) the child learns through play and trying; (c) the child's short attention span; (d) the child sees and understands the world from glasses that are different from adults; (e) the child is egocentric; (f) the child needs love and acceptance as well as exploration, activity, and expression (Hasibuan, 2017).

Children can think creatively through the objects around them (Fadhila & Rakimahwati, 2020). Children at an early age is the most effective learning period, children learn through playing both with their peers and with objects around them (Holis, 2017). Children tend to be egocentric but still part of social creatures that need other friends to play with. Children aged 0-8 years still have a short concentration range so that in teaching children can not be too long, because children will easily get bored (Kurnia Dewi, 2017). Children know objects by organizing and classifying them into concepts (Suriah, 2019). Children still think symbolically, cannot think abstractly and complexly.

An important aspect to be developed in the process of growth and development of children one of them is the fine motor aspect (Sutini & Rahmawati, 2018). Children who are disturbed by the process of growth and physical development will be very likely to be disturbed by other aspects, may be disturbed in terms of cognitive, language, social emotional, and also religious and moral values (Slamet, 2020).

Fine motor development in early childhood is different from that of one child from another (Pura & Asnawati, 2019). Differences in the growth and physical development of motor children are influenced by gender, pre-natal background, Christmas, to post-natal. The growth and physical development of the child's motor is greatly influenced by the

nutritional intake received by the child, the health of the child, and motor treatment in accordance with the child's development (Meiyanasari, 2016).

In addition to fine motor development, the aspect that needs to be developed is the language aspect. Language is a form of communication whether it is spoken, written or gesture based on a system of symbols (Arner & Santrock, 2014). Language consists of words used by society along with rules for arranging various variations and combining words. Children's language is the language used by children to express desires, thoughts, hopes, requests, etc. for the personal benefit of children (Yuli Ani Setyo Dewi, 2017).

Developing fine motor aspects and children's language can be packaged through activities equipped with interesting learning media. One medium that can be used to develop fine motor skills and language of children is the water tube media. Water tube media is a medium used to introduce properties to the theme of the activities of the universe. The purpose of water tube media is to introduce children to various properties of water by inviting children to do simple science experiments.

The form of learning media to be developed in this study is titled "Water Tube Media Development on the Theme of the Universe in Improving Fine Motor Development and Early Childhood Language". The development of this media is not only used to develop aspects of child development such as physical motor, language, cognitive, social emotional, and religious and moral values, but this learning media can also be used to introduce the properties possessed by water.

Media Water Tube is designed to meet the needs of early childhood development, especially in children group A, namely aged 4-5 years. Water Tube media is designed as attractive as possible and varied, i.e. using materials that are easy to be able to, providing an interesting color diversity and a variety of activities that vary. It aims to attract the attention and interest of children to follow the activities.

## RESEARCH METHOD

This study uses the Dick & Carey research and development model. These include analyzing needs and objectives, analyzing learning, analyzing learners (children) and context, formulating performance goals or performance, developing test instruments or tools, developing learning strategies, designing and conducting formative evaluations, and making revisions. The result of the development is a circuit game product to develop the fine motor and language skills of group A children. The development of the media includes material on the introduction of the properties of water. The research was conducted in class A TK Bina Prestasi Surabaya.

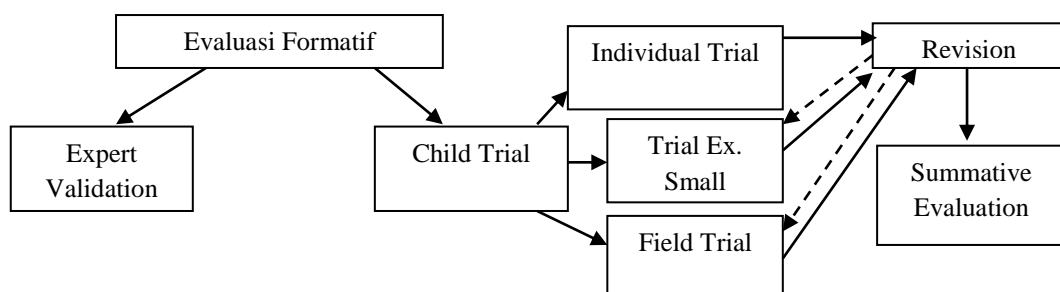


Figure 1. Trial Design

The research subjects in this study were the children of Group A1 in TK Bina Prestasi Surabaya, totaling 30 children. With the class teacher as the teacher and the

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researcher as the Observer. The expert validation test was carried out by asking for validation from 2 experts, namely an expert on language development and fine motor skills for early childhood, and a media expert.

The types of data obtained from product trials for developing water tube media are quantitative data and qualitative data. Quantitative data were obtained from the assessment scores at the field trial stage. While qualitative data were obtained from the results of expert validation, individual trials, and small group trials in the form of responses and suggestions for improvement.

The instruments used in this development research are interviews, observation sheets and questionnaires. Interviews were used to find out the problems that occurred during the initial observation. The interview instrument was used at the field trial stage before and after the activity.

Data analysis techniques on the development of water tube media were carried out by considering input, comments, and suggestions from experts using the Guttman scale, namely revision and not revision. Data analysis to determine the effectiveness of water tube media by using a comparison of fine motor skills before treatment or before the media is used with after treatment or after the media is used. The trial design used was the One Group Pretest Posttest Design type.

## **RESULT AND DISCUSSION**

The first step is to identify the problem that needs development so that it can be determine general goals. From the results of observations and interviews that have been carried out, it was found that there were obstacles in improving language and fine motor development in group A children at the Surabaya City Development Kindergarten so that the expected learning objectives had not been achieved and answer question correctly.

The obstacles that prevent the achievement of the learning objectives are classically monotonous learning activities with picture media and the implementation of learning in improving language and fine motor development of early childhood using worksheets and white board. As many as 50% of group A children are in the undeveloped stage of answering questions posed by the teacher, 50 % of group A children are undeveloped stage in aspects of fine motor development which include stirring, pouring and holding objects.

Based on the problems mentioned above, it is necessary to develop water tube media on the theme of the universe which is packaged in the form of scientific experiment activities to recognize the nature of water as a way to help children improve their storytelling skills, answer questions, express feelings, hold object, stir and pour. With this product, it is hoped that children can improve language and fine motor development in a fun way and according to their stage of development.

The results of the validation by 2 experts showed that the water tube media was suitable for use in the next stage, namely the individual trial stage. In the individual trial, it was found that all children got the maximum result, namely 100%. The results of the individual trial show that the percentage of children's acquisition is more than 51%, so it can be concluded that the individual trial is feasible to be continued in the next trial, namely the small group trial.

### **1. Individual trial**

Individual trial was carried out on group a children in the Bina Prestasi Kindergarten with 5 children. In individual trial, children use water tube media alternately one by one. It aims to determine the implementation and early response of children to the product being developed.

The percentage results obtained in individual trials conducted by 5 childrens. All children got the maximum results, namely 100 %. The results of the individual trial show that the percentage of childrens acquisition is more than 51%, so it can be concluded that

the individual trial is feasible to be continued in the next trial, namely the small group trial.

## **2. Small Group Trial**

A small group trial was conducted on 10 Group A children at Bina Prestasi Kindergarten. The results of a small group trial conducted by 10 children showed the maximum result was 100%. Scoring on each indicator obtained indicator 1 is 100%, indicator 2 is 100%, indicator 3 is 100%, indicator 4 is 100%, indicator 5 is 100%, indicator 6 is 100%, indicator 7 is 100%. Each indicator in the small group trial has obtained a maximum result of 100%, so it can be concluded that each indicator has obtained a feasibility percentage. The percentage results obtained from 10 children and 7 indicators have reached a maximum result of 100% so it can be concluded that the water tube media is suitable for use in the next trial, namely large group or field trials.

## **3. Large Group Trial**

The last stage of the child trial is a large group or field trial. This large group or field was carried out on all 30 children in Group A at Bina Prestasi Kindergarten. This large group or field trial aims to implement simple science experiment activities using water tube media to determine the effect of media on increasing child development. The effectiveness of increasing fine motor and language development through water tube media was carried out with initial measurements pretest and final measurements. The ability of children before and after activities with water tube media can be known through large group.

The effectiveness of increasing fine motor and language development through water tube media was carried out with initial measurements (Pretest) and final measurements (Posttest). The ability of children before and after activities with water tube media can be known through large group or field trials.

The research about media water tube has a novelty never been used by teachers to introduce the properties of water to early childhood besides the use of water tube media can improve fine motor development and early childhood language.

However, after taking action in pretest and posttest, the observations made by researchers and teacher showed the following results:

- 1) After use water tube media, the child becomes more enthusiastic followed more activity.
- 2) Water tube media can be improve fine motor skill and language.
- 3) Water tube media is effective to be used as a learning medium on the theme of the universe that can improve the development of fine motor skills and early childhood language.

## **CONCLUSION**

Based on the results of this development research, it can be concluded that the water tube media is feasible to use in improving the development of fine motor and language development in early childhood and is also effective and practical to use in improving fine motor and language development in early childhood. This is proven by testing the hypothesis used, namely the output table "test statistics" shows Asymp. Sig. (2-tailed) is worth 0.000. because the value is  $0.000 < 0.05$ , it can be concluded that it is accepted, meaning that there is a difference in scores between before and after being treated with water tube media.

The conclusion from the explanation above is in the results of the hypothesis test used, the output table "test statistics" shows Asymp. Sig. (2-tailed) is worth 0.000. because the value of  $0.000 < 0.05$ , it can be concluded that  $H_a$  is accepted, meaning that there is a difference in scores between before and after being treated with water tube

media. These data indicate that the water tube media is effective to be used as a learning medium on the theme of the universe that can improve the development of fine motor skills and early childhood language.

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