

The Effect of Angklung Musical Instrument on the Ability to Recognize Number Symbols and Fine Motorik of Children Aged 5-6 Years

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ABSTRACT

This study aims to educate early childhood children about learning to recognize number notation easily and how to play angklung correctly. With the playing Angklung can develop the ability to recognize symbols of the numerical notation and fine motor that is coordinating between eyes by hand. This study was conducted in children aged 5-6 years at the Taman Kasih Kindergarten in Surabaya, with a total of 23 control classes and 23 experimental classes for children. This study uses quantitative research that uses experimental methods and has a control group. The feasibility of angklung media from media experts and material experts with very valid criteria and is appropriate to use. Pretest results of children's abilities are still many who have not developed 74%, have not developed 4%, and have developed as expected 17%. After being given treatment using the angklung instrument, the ability of 70% of children to develop is very good and 30% to develop as expected. Based on the data above, the angklung media used in playing musical instruments in recognizing numerical notation symbols can improve the cognitive aspects of early childhood development while the results of pretest results of fine motor skills of children are still at the stage of developing as much as 54% and fine motor skills that develop as expected as much as 46%. After being treated as much as five times, then held a posttest increased to fine motor skills of children to develop very well 76% and develop as expected 24%.

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1. INTRODUCTION

The most crucial target in teaching early childhood is guiding, directing, learning, and providing stimulation to maximize the talents and potential of each child optimally so as to form an attitude or character that is appropriate to the level of stages of child development as a basis for treading further education levels (Directorate Developing kindergarten and elementary school, 2010). Stimulus carried out by early childhood education must be meaningful and developed in six areas of child development as a whole, including cognitive, language, social-emotional, motor, and arts. Stimulus carried out by early childhood education must be meaningful and developed in six areas of child development as a whole, including cognitive, language, social-emotional, motor, and arts. The purpose of playing with children is to feel happy, done voluntarily, without coercion, and by playing, children can develop all aspects of development that children need.

According to Jean Piaget (Suparno, 2000, p.49) states that the cognitive development of children at the age of 2-7 years is at the preoperational stage, which is characterized by the use of symbols or signs to express or clarify an object that was not currently with the subject. Sujiono and Yuliani, et al (2009, p. 29) explain the ability of cognitive development, including grouping objects that have similarities in color, shape, and size, matching circles, triangles, and rectangles, and recognizing and counting numbers 1

through 20. In the 2013 curriculum, Permendikbud 137 of 2014 on the scope of development on cognitive aspects, namely symbolic thinking by mentioning symbols, numbers, and various forms, which are basic competencies for early childhood. Cognitive development in early childhood is closely related to the child's ability to recognize symbols and numbers.

In general, children can master quickly, but if the symbol of the number is associated with symbols such as number notation in musical instruments that are pitched, this becomes an obstacle for early childhood. The influence of symbol recognition on music or referred to as number notation, have an impact on improving cognitive aspects in early childhood (Perez, 2018, p.3; Yuliani, 2018). Besides, the introduction of symbols in music makes children's intelligence increase, makes children more focused, and stimulates the child's mindset so that children are able to digest information well (Rose, 2017, p.2; Primasatya, 2019). The introduction of numerical notation symbols taught by the teacher helps children to improve children's recognition of music the better in playing musical instruments (Bolduc, 2017, p.1).

The results of observations in the field also illustrate that children's motor skills are less well stimulated, because the background of a middle to upper economic family makes parents to care for and overprotecting children so that the acquisition of

children's learning in the motor aspects of children is still at the stage of development "begins to develop ". By moving children get and gather information that will help children obtain knowledge and information. By playing, it helps children to develop fine and cognitive motor skills, one of which is playing angklung.

Angklung is an Indonesian traditional musical instrument made of bamboo that sounded by shaking it so that the bamboo pipe body collides with another bamboo pipe to produce a sound that vibrates in tone arrangement (Arifama, 2016, p.309). The use of angklung musical instruments in early childhood learning also aims to introduce Indonesian culture early on and as one of the efforts to preserve local Indonesian culture, especially in the Chinese early childhood environment. Angklung musical instrument games require concentration in shaking the bamboo pipe between the right and left hand by adjusting the notation. This game or through this music can train the cognitive abilities and fine motor skills of children because for children, music can entertain, calm children, and make children more excited in learning (Kumala, 2015, p.180).

Based on the background of the problem above, the researcher wanted to know the effect of angklung for cognitive abilities in recognizing numerical notation symbols and fine motor skills in children aged 5-6 years in Kindergarten group B.

Early Childhood Cognitive Development

The word cognition in English means the ability to think. According to Gagne, cognitive is a processor processing of information through the nervous system when humans identify something (Jamari, 2006, p. 10). Based on Piaget's theory, early childhood is at a stage of concrete pre-operational development.

According to Hurlock (1998, p.47) describes the ability to move as part of the coordination of body movements with a good arrangement of the nerves, muscles, brain, and nerves that are controlled. Gross motor is a movement from a part of the body that is instructed by the brain to regulate exercise that requires and uses large muscles such as the hand muscles, leg muscles, and parts of the body. Fine motor is a movement that uses smooth muscles or a part of certain limbs that practice, such as moving the hands to arrange the blocks, playing instruments, cutting, and writing (Hasibuan, 2017, p.237). Fine motor skills include coordination between the eyes and hands that require high precision. The fine motor does not require a large amount of energy because it only tucks small muscles (Ministry of National Education, 2008, p.1).

According to Nasution (2016, p.12), the benefits of music art education for early childhood, one of which introduces notation to children in order to improve children's musical intelligence so that intelligence on cognitive and other aspects can develop optimally. According to the theory of Neuron Roger Sperry (1992) explains that music education will help children's cognitive development because the stimulation of music can break apart the separated neurons into one integrated and fully integrated link, this is what can optimize children's cognitive development (Nasution, 2016, P.17). The purpose of teaching notation to children so that children can play musical instruments or sing in accordance with the correct pitch (Bolduc, 2009, p. 40). In addition, the introduction of music notation aims to be able to play a musical instrument correctly (Orlando, 2016, p.1). The introduction of notation for early childhood must be at a simple level by composing songs within the limit of one octave because it is good music for early childhood (Nasution, 2016, p.18).

According to Syahroni (2008, p.10), the meaning of angklung is a musical instrument made of bamboo; the sound tube is the source

of the sound and is sounded by shaking it. Angklung comes from West Java. According to Kusmargono (2012, p. 6) that angklung has a tone bar, a small tone bar (front), which has a higher sound than the sound of a large tone bar (back). Each angklung represents one note that uses diatonic scales, namely do, re, mi, fa, sol, las, si. Angklung musical instrument play is done by means of the left hand holding the angklung, and the right hand is shaking or tapping the angklung to train children's fine motor skills and cognitive in recognizing notes on the angklung musical instrument (Setyawati, 2017, p. 65). Angklung musical instrument games are done so that early childhood can preserve and love Indonesian culture. Campbell (2002, p.157) explains that music is: a way that all cultures in a country are expressed so that it stimulates an important culture for each country. So the introduction of traditional musical instruments is important to introduce Indonesian culture. Practicing musical instruments can develop cognitive, and motor skills in children and can increase IQ more than just memory or ordinary thinking power (Vivien, 2015, p.154).

2. METHODS

This study uses quantitative research that uses experimental methods and has a control group. This experimental research provides treatment to the subject or group of subjects that aims to determine whether the treatment that has been given has an impact or influence on the variable. In this study, researchers used an experimental group and a control group that had the same or nearly identical characteristics of students. This research is the independent variable is the musical instrument angklung (X), while the dependent variable is the ability to recognize numerical symbols (Y_1) and fine motor (Y_2). The population in this study were all children aged 5-6 at TK Benih Kasih Surabaya. The sample that will be taken is divided into two classes, namely the experimental class and the control class, amounting to 46 children.

In this study, the research instruments used were (1) validation instruments to measure learning material compiled in the daily learning implementation plan and research instruments, (2) observation sheet performance tests (performance) were observations made directly when the child made activities or when given the task to be assessed. Observation sheet to assess the ability to recognize numerical and fine motor symbol notation. Measurement of a child's learning ability before receiving treatment and receiving treatment.

To see the effect of the treatment given on the ability to recognize numbers and fine motor symbols, it will be explained as follows: (1) validation data analysis using contract validity that is using the opinions of experts in their fields, (2) normality test, (3) homogeneity test and (4) all t-tests using the SPSS 21 Software.

3. RESULTS AND DISCUSSION

Based on the results of the validation of media experts and material experts, the use of angklung to develop cognitive abilities in recognizing numerical symbols and fine motor skills is included in the very valid category. After going through the validation stage and declared very feasible to use. Based on the results of the feasibility analysis Angklung musical instrument games are very feasible to use to improve cognitive abilities in recognizing numerical symbols and fine motor skills.

The results of normality tests on cognitive abilities to recognize numerical symbols can be seen from the value of Kolmogorov Smirnov Z on cognitive abilities knowing numeric symbols are 0.177,

and the significance value is $0.061 > \text{asymp. Sig of } 0.05$. Thus it can be concluded that H_0 is accepted, and H_1 is rejected. The normality test results of fine motor ability can be seen from the value of Kolmogorov Smirnov Z on fine motor ability is 0.199, and the significance value is $0.081 > \text{asymp. Sig of } 0.05$. Thus it can be concluded that H_0 is accepted and H_1 is rejected.

Statistical levena values for the experimental class and the control class in the pretest and posttest cognitive abilities recognizing numerical symbols produce a significance value of 4,250 ($\text{sig} > 0.05$). Statistical levena values for the experimental class and the control class in the pretest and posttest fine motor abilities produce a significance value of 4.745 ($\text{sig} > 0.05$).

Hypothesis test results based on the results of independent samples t-test on cognitive ability to recognize numerical symbols can be seen that the calculated t value is 14,004 while t table obtained with N 23 is 1.430. From these results, it can be seen the value of $t_{\text{count}} >$ of the t_{table} , and the significance value is $0,000 < 0.05$, so that it is concluded that H_0 is rejected. Based on the results of the independent sample t_{test} , fine motor ability can be seen that the calculated t value is 12.122 while the t table obtained with N 23 is 1.011. From these results, it can be seen the value of $t_{\text{count}} >$ of the t_{table} and the significance value is $0,000 < 0.05$, so that it is concluded that H_0 is rejected. From the results of this study, it can be concluded that using the angklung children's musical instrument can improve the child's ability to understand the concept of recognizing numerical symbols and influencing the fine motor skills of children aged 5-6 years.

4. CONCLUSION

Angklung musical instrument play in children aged 5-6 years in Kindergarten Seed Love Surabaya affects increasing cognitive ability to recognize numbers notation symbols. Increased cognitive ability to recognize the symbolic notation of numbers can be known from the value of the t-count is 14,004, while the t-table obtained from 23 respondents was 1,430. From these results, it can be seen that the value of $t_{\text{count}} >$ than the t_{table} , so it can be concluded that H_0 is processed, and there are differences in the results of cognitive ability to recognize numerical symbol notation before and after treatment. The use of angklung musical instrument plays a very significant effect on cognitive development in recognizing numerical notation symbols.

Angklung musical instrument play in children of class B in Kindergarten Seed Love Surabaya affects the increase in fine motor skills. The increase in fine motor skills can be seen from the t-test value is 12.122, while the t-table obtained from 23 respondents was 1.011. From these results, it can be seen that the value of $t_{\text{count}} >$ than the t_{table} , so it can be concluded that H_0 is processed, and there are differences in the results of fine motor skills before and after treatment.

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