JURNAL INDRIA
Jurnal Ilmiah Pendidikan Prasekolah dan Sekolah Awal
(Scientific Journal of Preschool and Early School Education)
JIN Volume III, Number 2, September 2018, Pg.94-106
http://journal.umpo.ac.id/index.php/indria/index

INCREASING THE UNDERSTANDING OF THE CONCEPT OF NUMBERS THROUGH ANGKLUNG PLAYING (ACTION RESEARCH IN GROUP B IN PAUD ALFANI 2016/2017 ACADEMIC YEAR)

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Article History:

Submitted:
Juni 2018
Approved:
Agustus 2018
Published:
September 2018

Keywords:
numbers concept understanding, angklung playing, children aged 5-6 years old

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan proses dan hasil kegiatan bermain angklung dalam rangka meningkatkan pemahaman konsep bilangan anak balita pada anak usia dini dan apakah bermain angklung dapat meningkatkan pemahaman konsep bilangan anak pada anak usia dini tahun 2017. Responden dalam penelitian ini adalah 18 anak dari Kelompok B PAUD Alfani pada tahun 2017. Metode penelitian yang digunakan adalah model penelitian tindakan spiral Kemmis & Taggart yang terdiri dari: (a) perencanaan, (b) tindakan dan observasi, dan (c) refleksi. Instrumen yang digunakan dalam penelitian ini adalah catatan lapangan, wawancara, dan dokumentasi. Skor data pemahaman tentang konsep ekonomi pada anak dianalisis secara kuantitatif dan kualitatif. Hasil dari data menunjukkan bahwa konsep belajar pada anak meningkat dari pra siklus ke siklus pertama dan siklus kedua. Berdasarkan pengamatan tindakan yang telah dilakukan kepada responden, diperoleh bahwa dalam kegiatan pra-tindakan, kelas rata-rata adalah 40,09%, dan pada siklus pertama menjadi 59,41% dan kemudian meningkat pada siklus kedua 85,61 % Hasil dari penelitian ini adalah (1) kegiatan bermain angklung dapat meningkatkan pemahaman konsep bilangan pada anak-anak Kelompok B PAUD Alfani pada tahun 2017, (2) skor pemahaman konsep bilangan pada anak-anak Kelompok B PAUD Alfani tahun 2017 meningkat dari pra siklus ke siklus pertama dan siklus pertama ke siklus kedua.

Abstract

This research aimed to describe the process and results of angklung playing activities in order to improve the understanding of the numbers concept of children under five in early childhood and whether angklung playing can improve the understanding of the numbers concept of children in early childhood in 2017. Respondents in this research were 18 children from Group B PAUD Alfani in 2017. The research method used was a model of Kemmis & Taggart spiral action research consisting of: (a) planning, (b) action and observation, and (c) reflection. Instruments used in this research were field notes, interviews, and documentation. Scores of understanding data on economic concepts in children were analyzed quantitatively and qualitatively. The result of the data showed that the concept of learning in children increased from pre-cycle to first cycle and second cycle. Based on the observation of the action that has been done to the respondents, it was obtained that in the pre-action activity, the average class was 40.09%, and in the first cycle became 59.41% and then increased in the second cycle of 85.61%. The results of this research are (1) angklung playing activities could improve the understanding of numbers concept in children Group B PAUD Alfani in 2017, (2) the numbers concept comprehension score in children Group B PAUD Alfani year 2017 increased from pre- cycle to first cycle and first cycle to second cycle.

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ISSN 2579-7255 (Print)
ISSN 2524-004X (Online)
DOI: http://dx.doi.org/10.24269/jin.v3n2.2018.pp94-106

INTRODUCTION

Learning for early childhood plays a very important role important for the formation and attitude of learning at a later stage. The success of learning in the early stages greatly determines the success of learning at the next stage. Also on the contrary, failure to learn at an early stage is the biggest cause of learning failure at a later stage. In 1992, the National Association for the Education of Young Children (NAEYC) argued that the early days of a child's life were the days of learning, "early years are early learning years". This is due to the fact that over a period of early age, children experience a variety of rapid growth and development in various aspects.

In the early childhood period, almost all potential children experience a sensitive period to grow and develop quickly and greatly. Therefore, at this time children are in desperate need of stimulation from the environment. Learning success is influenced by various factors, one of which is the ability of teachers to create and design conducive learning activities.

According to research conducted by Pirjo Aunio (2010), it is said that children need to know what objects are being counted (i.e., classication skills) and calculate all items that are included once and only once (i.e., one - to - one correspondence). In addition, depending on the task, children may need to decide based on the results of a set that has more or less than the others (i.e., comparison and seriation skills).

Furthermore, according to Robert S. Siegler and Geetha B. Ramani (2015) in their research, they say that numeracy knowledge of children from low-income families is very different from children with middle-income backgrounds.

Furthermore, according to Roi Cohen Kadosh (2013), he states that low numeracy skills will have a negative impact on the development of mathematics in a higher class which will also have a negative impact on the prospects of employment, mental and physical and health of individuals and also the economic status of the country.

Based on the results of my initial observations in PAUD Alfani in Group B with a number of 18 children, 10 boys and 8 daughters were still far from expectations. Cognitive development especially in

number concepts still becomes a trouble. In PAUD Alfani, there were 12 (70.58%) children who were still having difficulty understanding the concept of numbers. Difficulties experienced by children were like when children were asked to mention numbers either sequentially from the smallest to the largest, sequentially from the largest to the smallest, or when the children were asked to randomly mention numbers by pointing to the number symbol. Children also have not been able to compare the number of objects with the number symbol. When the children were asked to name the number according to the symbol, the children tended to be quiet and waited for the teacher to tell and then they followed.

The difficulties experienced by children were due to the limitations of existing supporting media. In addition, the methods carried out by classroom teachers also tended to be lecture-oriented so that children were less enthusiastic in listening and understanding what was conveyed by the teacher. In stimulating children's cognitive intelligence, especially in the concept of numbers, it should be done with a fun method. One method that will be applied to improve understanding of number concepts is through playing angklung musical instruments.

Angklung Playing

Angklung musical instruments are traditional musical instruments from West Java. Angklung includes melodic musical instruments, namely musical instruments used to play a series of tones or melodies of a song.

Angklung is an Indonesian traditional musical instrument derived from Sundanese. It is made of bamboo which is sounded by shaking it so that the body of the bamboo pipe collides so as to produce a vibrating sound in a set of tones 2.3 to 4 tones in each size, both large and small. Tones of angklung musical instruments as a tradition of most Sundanese include selendro and pelog.

Playing angklung is very easy so that angklung can not only be played by adults but can also be played by children of kindergarten. Playing Angklung is also good to introduce to children, children learn to love and preserve local culture so that from an early age children can know what culture they have in their

area.

Figure 1 Angklung

One angklung represents one tone, for example do, re or mi. To play a song arrangement, not all angklung are sounded simultaneously. In playing angklung, there is a time when the angklung is shaken, there is also a time to stop depending on the rhythm of the song. Every child must be disciplined to shake or to stop angklung held in accordance with the song arrangement.

According to Sudarso. Anugrah S. (2015), he states, "Angklung is a traditional music instrument from bamboo. Angklung consists of two bamboo tubes in a frame. The note differences of the tubes are one octave. The sound of angklung is produced from the collision between the lower part of the tube and the frame. The sound of angklung is amplified by resonator from each tube."

As mentioned above, Angklung is a traditional musical instrument from Indonesia made from bamboo. It consists of two bamboo tubes in the frame. The difference in notes from a tube is one octave. The sound of angklung is produced from a collision between the low part of the tube and the frame. The sound is amplified by the resonator of each tube.

From the results of this research, it is suggested that the teacher should be able to use the media to optimize musical intelligence.

Another research by Silvia, she mentions that angklung is a native Indonesian bamboo musical instrument that is very simple and has been known for centuries, which is played by vibrating (the sound is caused by a collision of a bamboo pipe body) so as to produce a vibrating sound in 2.3, up to 4 tones in every size, both large and small. This research used a qualitative approach that the program in TK YKA Banda Aceh already has angklung extracurricular activities.

In line with Diah Rizky's opinion (2012) in the journal, she states that angklung is one of the original Indonesian traditional musical instruments from western Java. In addition, angklung musical

instruments get special attention in the international community as a simple but amazing musical instrument, because it produces a beautiful and unique sound from banged bamboo pipes. This research used qualitative descriptive methods and the results of this research indicated that the application of angklung learning with the angklung method is an effective strategy to attract early childhood learning.

Furthermore, according to the research conducted by Marlina, she states that angklung is a multitonal (double-pitched) musical instrument that has traditionally developed in Sundanese society in the western part of Java. This instrument is made of bamboo, sounded by shaking it (the sound is caused by the collision of the bamboo pipe body) so as to produce a vibrating sound in the 2, 3, up to 4 tones in each size, both large and small. This research used action research method that showed that playing angklung music could improve the gross motor skills of early childhood.

Based on the above understanding, it can be interpreted that playing angklung musical instrument is playing a traditional musical instrument from West Java made of bamboo played by shaking so as to produce a sound that vibrates in 2.3 to 4 tones in each size and everyone can play both children children and adults.

Numbers Concept Understanding

Understanding is a very important aspect in the process of accepting conceptual knowledge. Understanding according to Anderson and Krathwohl in Coppola and Primas is "understand is defined as constructing the meaning of instructional messes, including oral, written, and graphic communications". This statement can be interpreted freely that understanding is the success of capturing the meaning in a learning message that can be in the form of oral, written, and picture. The statement illustrates that in order to be understood properly, a learning that is presented through written messages, verbal, or pictures must be able to give meaning to children. Awareness on the counting is not only about the ability to count "one, two, three, etc ...". In this period, another ability to understand that one object is related to another object and can be paired develops.

Understanding for counting is also related to knowledge of strategies in calculating related to adding and subtracting. The development of basic calculating abilities can be done by familiarizing children to interact with situations related to counting activities such as:

a. Doing game that contains 'taking a turn'

b. Matching the number of objects with the number

c. Writing numbers according to the number of objects

Understanding the concept of numbers can be interpreted as the ability to recognize and understand the concepts of numbers, transitions, and symbols according to the number of objects of symbol form introduction and can match according to the number symbol.

According to Howden, number Sense is defined as "a good intrusion of numbers and interconnectedness. This develops gradually as a result of exploring numbers, visualizing them in various contexts, and mutually coinciding in ways not limited by traditional algorithms. Understanding numbers and operation and sensitivity to numbers cannot occur naturally. The number concept cannot be taught at one time, but it takes a long time, requires a process and a series of lessons.

Understanding the concept of numbers is built step by step from the early period of a baby to pre-school age, gradually becoming a tool that can be used in problem solving. This is very complex and develops gradually from time to time and can be promoted through teaching.

One of the number concepts closest to children is counting, including two operations, rote counting and rational counting. Rote counting is to be able to name numbers and remember them. Namely, children who mention one (1), two (2), three (3), four (4), five (5), six (6), seven (7), eight (8), nine (9) and ten (10), they can already calculate with a denomination from 1-10. Rational counting, namely pairing numbers with objects, this can build a child's understanding of the number-one-to-one correspondence concept. The concept of numbers in early childhood that is closest to the children is to mention numbers from 1-10 and vice versa 10-1, where the

children has no trouble mentioning these numbers. Furthermore, the children can use numbers to calculate objects around him.

RESEARCH METHOD

The method used in this action was Kemmis and taggart spiral model. In the Kemmis & Tagart model, Acting and Observing are used as a whole because they assume that the two components are two activities that cannot be separated. In this research, the researcher will provide actions in order to improve musical ability through playing angklung musical instruments which will be carried out in two cycles. These stages take place repeatedly, until the goal is reached. Therefore, the understanding of cycles in this model is a cycle of activity consisting of four components, namely: planning, acting, observing, and reflecting. This research also involved collaboration between the researcher and teacher. The researcher besides teaching and implementing actions are also tasked with carrying out observations or active participants. Meanwhile, teachers help teach and make observations as well as collaborators.

This research is considered successful if the children's score has reached 71% of the criteria agreed by the researcher and collaborator in the child's indicator of (1) remembering the number, (2) understanding the number, (3) analyzing the number, (4) applying the number.

Data collection techniques carried out in this resarch were observation, interviews, and documentation. Data analysis was done with qualitative and quantitative approaches. The data in the form of observations contained in the field notes were analyzed using Miles and Huberman methods with the data reduction component, data presentation, and conclusions. Quantitative data analysis used descriptive statistical analysis, namely data analysis by describing the observations of children's understanding of the number concept in the form of table data and graphs or diagrams.

DISCUSSION

The results of the research carried out when the research on

PAUD Alfani Group B children with 18 children respondents showed an increase in the understanding of the number concept of children. Quantitative data of the improvement of the understanding of number concepts in pre-cycle, cycle I, and cycle.

Based on the graph above, in the pre-cycle, the average score of children was 40.09% increasing in cycle I by 59.41% and it increased again in cycle II by 85.61%. Based on these data, the increase in the understanding of the number concept has reached the agreed upon results by the researcher and collaborators and shows that playing angklung can improve the understanding of the children'd number concept in Group B PAUD Alfani in 2017. The increase of the understanding of the number concept in cycle II and classically all children have fulfilled success criteria according to the agreement of the researcher and collaborators showed that angklung playing activities can improve the children's understanding of numbers concept.

Qualitative data analysis was made based on the results of field notes, interviews, and documentation with the stages of data reduction, data display, and conclusion drawing. The following is the presentation of qualitative data from problematic indicators in this research with the act of playing angklung in improving the children's understanding of the numbers concept in Group B PAUD Alfani in 2017.

Based on the observation of the researcher and collaborators, it can be concluded that the application of angklung playing can improve the children's understanding of the number concept of in Group B PAUD Alfani Bogor in 2017. The indicator of matching the number of objects with symbols of numbers in children indicated progress from pre-cycle to cycle I and cycle II. It can be seen from: first, the children matched the number of objects with the number symbol together and were assisted by the teacher, secondly, the children matched the number of objects with the number symbol together without the assistance of the teacher, thirdly, the children matched the number of objects with the number symbol contained in the worksheets given by the teacher.

DISCUSSION

From various indicators that have been stated, children were very happy and enjoyed activities carried out by playing angklung. Children became more excited when doing activities in the classroom. Children also looked happy and easily understood the material of the understanding of the concept of numbers given by the teacher. The teacher also provided assistance and direction when there were children who have not been able to work on the understanding of the number concept.

The improvement of the children's understanding of the numbers concept of which increases in every cycle is an evidence that angklung playing is effective. The implementation is simple, having the interaction between the teacher and the children or fellow children makes the child have increased knowledge in a short time. When playing angklung, the children unwittingly learned the number concept from the numeric notes given by the teacher. The children were also happier because they could learn while singing and not monotone only with worksheets. This is an advantage of learning by using angklung playing activity compared to other learning methods.

The results of the existing research are related to several other disciplines. When viewed from the pedagogical aspect, the educational value contained in the learning process using angklung playing activity to improve the understanding of the number concept is that children are supported by contextual and fun playing activities to understand something in terms of the understanding the concept of Scaffolding. In playing angklung, children are actively involved in every activity that unconsciously increases their understanding of something, and knows the things that are nearby. This is in accordance with the opinion of the Vygotsky stating that "children 's creation of imaginary situations derive from real life tensions ". All representational playing activities create imaginary situations, representational playing contains rules of behavior that must be followed by children. According to Vygotsky, playing is an activity carried out with or without using tools that produce understanding or provide information, provide

pleasure and develop imagination in children. If the notion of play is understood and very much mastered, then that ability will have a positive impact on our way of helping the children's learning process. An observation when children play actively or passively will help to understand the children's mindset, and to improve communication skills.

One of the fundamental concepts in mathematics is the understanding of the numbers concept. This understanding is more about how the children build a meaning about the numbers concept of playing activities performed by children when outside the classroom or in the classroom. The understanding of the numbers concept began to be introduced at an early age in children, so that at a later age the children can develop well and can affect the development of mathematical abilities in general and at a higher level of education. According to research conducted by Viorel Agheana, she states that "mathematical skills are based on the concept of number'. The understanding of the numbers concept and basic mathematical skills so that they can be used in daily activities is an important part of the education of children from the pre-school period. "

Mathematical ability is based on the concept of numbers. Understanding the concepts of numbers and basic mathematical skills so that they can be used in daily activities is an important part of the education of children from the pre-school period. Mathematics for early childhood is the way they see the world in their experience, the way to solve real problems. It is part of the understanding of the number, number operations, and functions. The concept of early childhood numbers develops quite rapidly between the ages of three to six years. For children aged four years, they can distinguish between small and medium and large. But they have difficulty comparing medium (medium) and large size.

CONCLUSION

First, the process of improving the understanding of the concept of numbers of children in group B was done through the application of angklung playing activities, in which the research was

conducted in two cycles. At the beginning of the first cycle activity, the teacher first introduced the angklung musical instrument and the teacher showed the children how to play angklung, the teacher also introduced the numbers, do, re, mi, fa, sol, la, ti, do. The children understood the numeric notes and the teacher gave the angklung to the children according to the numbers shown in the angklung so they understood that playing angklung is in accordance with the notes that the teacher would write on the board, then the teacher wrote the notes on the board, children paid attention to the numeric notes on the blackboard and the children mentioned the number noted on the board. After that, the teacher gave the children the code to play angklung by using finger so that the childred would start singing one song indirectly using angklung. After playing angklung, the activity of the improvement of the number concept understanding started, starting from sorting numbers 1-10 in sequence, sorting objects from the smallest to the biggest, grouping the shapes of large angklung, showing more objects and fewer objects, matching numbers with the same number symbol, distinguishing which numbers are smaller and larger numbers, understanding the effect of addition of an object, understanding the effect of the reduction of an object and mentioning the results of subtraction and addition of numbers up to 10. The implementation of actions in cycle II was done by the same way, but there was a slight improvement based on the results of reflection conducted by researchers together with the collaborator of the implementation of the action in cycle I. The differences from cycle I and cycle II were during cycle I children played angklung together and were not separated, in cycle II children played angklung being divided in to two groups so that children could see their friends playing angklung. Then, in the first cycle, the teacher gave direction to the childrern when playing angklung using fingers, in cycle II the teacher gave direction to the children through the number notes printed on the board so the teacher only pointed the number and the children must ring the angklung according to the number designated by the teacher.

Second, the results of activities using angklung playing activities could improve the children's understanding of the number concept of group B PAUD Alfani 2017. This is indicated by the increasing of children's TCP understanding of the concept of number from pre-cycle to cycle I to cycle II. This research experienced an increase of the average TCP children in the pre-cycle by 40.09%, an increase in cycle I which had an average TCP of 59.41% and an increase in cycle II with an average TCP of 85.61%. This indicated that the application of angklung playing activities can improve the children's understanding of the concept of numbers.

IMPLICATIONS

Based on the conclusions that have been raised, the implications of this research are:

1. For teachers

This research is expected to be useful for teachers during the learning process of number concepts. This research is also expected to help teachers to optimize the ability to understand the number concept through angklung playing.

2. For children

This research can improve the ability to the children's understanding of the number concept through the method of playing angklung. Direct involvement of children when playing angklung can provide good stimulation of children in understanding the number concept because the children experiences firsthand when playing angklung.

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