



Introducing Numbers to Early Childhood Children by Using Number Cards in PAUD Negeri 2 Banda Aceh

Anizar Ahmad¹ ✉, Yuhatriati¹, Sitti Nurchasanah²

DOI 10.15294/ijeces.v6i2.20210

¹FKIP Universitas Syiah Kuala

²PAUD Negeri 2 Banda Aceh

Article Info

Received September 2017
Accepted October 2017
Published November 2017

Keywords:
Number Cards; Numbers;
Early Childhood Children

Abstract

Number cards is one of simple media that can be used to help introduce early childhood children to numbers and numeral symbols. Formulation of the problem of this research are, 1) How do we introduce numbers to children by using number cards in PAUD Negeri 2 Banda Aceh? 2) How is the children's responses to the learning method of numbers introduction by the use of number cards in PAUD Negeri 2 Banda Aceh? The purposes of this research are: 1) to introduce numbers to children by the use of number cards in PAUD Negeri 2 Banda Aceh; 2) to understand children's responses to the learning method of numbers introduction by the use of number cards in PAUD Negeri 2 Banda Aceh. The research is Classroom Action Research (PTK). The research subjects are 25 children of Group A in PAUD Negeri 2 Banda Aceh. The action is combined with stories, games, and contests. Data collection is done by observation and work method. Data analysis technique is using descriptive analysis. Conclusions of this research are; 1) Introducing numbers to early childhood children by using number cards can be done with stories, games, and contests. 2) Students' responses to the learning method of numbers introduction by the use of picture cards that is done with stories, games, and contests are generally positive. 3) The results of work method about numbers introduction by the use of number cards that is done with stories, games, and contests are generally good at the developmental aspect, that children can compile, sort, and mention numeral symbol corresponding to amount of items in the picture that are shown.

How to cite

Ahmad, A., Yuhatriati, Y., & Nurchasanah, S. (2017). Introducing Numbers to Early Childhood Children by Using Number Cards in PAUD Negeri 2 Banda Aceh. *Indonesian Journal of Early Childhood Education Studies*, 6(2), 99-104. doi: 10.15294/ijeces.v6i2.20210

© 2017 Semarang State University

✉Corresponding author:

¹FKIP Universitas Syiah Kuala

²PAUD Negeri 2 Banda Aceh

E-mail: yuhatriati@yahoo.com

INTRODUCTION

Early Childhood Education Program is the most fundamental education that every 0-6 year old children should participate. Constitution Number 20 Year 2003 about National Education System Chapter 1 Clause 14 explains that Early Childhood Education Program (PAUD) is "development effort that is aimed at children from birth up to six year old which is accomplished by providing educational stimuli to help the growth and development of body and spirit, so that children have the readiness to enter further education". Early Childhood Education Program (PAUD) Institutions will facilitate children to get educational stimuli in order to help development and growth of body and spirit that covers the aspects of affective, psychomotor, and cognitive development.

One of the scope of cognitive development for young children aged 4-5 years is the concept of numbers, numeral symbols, and letter symbols. Based on Regulation of the Minister of National Education Number 56 Year 2009 about Early Childhood Education Standard, in the attachment concerning concept of numbers and numeral symbols, Achievement Level of Development for children aged 4-5 years are: 1) Understanding the concept of plenty and few, 2) Counting the number of objects from one to ten, 3) Knowing concept of numbers, 4) Knowing numeral symbols.

4-5 year old children are yet to understand operational definition as an interaction process of mental activities, where the process can go back to the first point of logical thinking. According to Piaget (in Dahar (1988:1830), 4-5 year old children is on the pre-operational level of intellectual development. In this stage of development, children's reasoning is partial to partial, Piaget called it transductive, and irreversible, with egocentric characteristic. In thi stage, it's difficult for childrent to imagine this world on other people's perspective

Mathematics is something concerns to abstract ideas/concepts that is arranged hierarchically by the use of deductive reasoning. Soejadi (2000:13) states that one of the characteristics of mathematics is "having an abstract objects of study." Mathematics for early childhood children can be served with study activity of mathematical concepts by playing in daily life but still scientific. Concepts of numbers is both a foundation for mathematics skill development and children's readiness to follow elementary school's education. Because of that, learning (introduction) of concept of numbers should be done by activities

utilizing concrete and fun media, one of them is by the use of number cards.

Problem of numbers introduction in PAUD Negeri 2 Banda Aceh is caused by inappropriate games and learning method. The learning is less meaningful, so students can only memorize the name of numbers without connecting in with numbers itself.

Based on the problem in PAUD Negeri 2 Banda Aceh, author is interested to do an action research with problem formulations; 1) How do we introduce numbers to children by using number cards in PAUD Negeri 2 Banda Aceh? 2) How is the children's responses to the learning method of numbers introduction by the use of number cards in PAUD Negeri 2 Banda Aceh?

The purposes of this research are: 1) to introduce numbers to children by the use of number cards in PAUD Negeri 2 Banda Aceh; 2) to understand childrens's responses to the learning method of numbers introduction by the use of number cards in PAUD Negeri 2 Banda Aceh.

Action hypothesis for this research is, introducing numbers to early childhood children can be done by the use of number cards.

Theoretical Basis

Early Childhood Education Program (PAUD) has a big role in the efforts of improving the intelligence of a nation, and society are expected to become increasingly aware of the importance of early childhood education.

Early Childhood Education Program is one step of education which attempts to facilitate children's development and growth as early as possible, ranging from 0-6 year old. Material education for early childhood children, corresponding to Regulation of the Minister of National Education Number 56 Year 2009 about Early Childhood Education Standard, in the attachment concerning content standards covering 1) moral and religion values, 2) physic, 3) cognitive, 4) language, and 5) social emotional.

Early Childhood Education Program is organized with the main objective to build Indonesian children with good qualities, that grow and develop corresponding to their development stage, for the readiness of entering elementary education and living in adulthood.

Early childhood children characteristics, stated by Hartati (2005:8-9) are: 1) have a big curiosity, 2) is a unique personality, 3) like to fantasize and imagining, 4) potential period to study, 5) egocentric, 6) low range of concentration, 7) part of social beings.

Early childhood education must corres-

ponds to early childhood characteristics. Suyadi (2010:16) states that early childhood learning must be done with playing activities that are prepared by the teacher, with the preparation of concepts and learning process. Early education learning is characterized by learning through playing, children learn to build their knowledge, children learn scientifically. Children learn the best if what they learn are covering the developmental aspects of meaningfulness, interesting, and functional.

Introducing numbers and numeral symbols is one of the cognitive developmental scope for early childhood children aged 4-<5 years. Cognitive development describes how children's mind develop and functioning so they can think (Mansur, 2005:33). Cognitive development is a mental process that covers the understanding of world, knowledge inventions, creation and comparison, think and understand. The mental process that was mentioned is information processing that reach cognitive activities, intelligence, learning, problem solving, and concept forming. This also scopes creativity, imagination, and memory. 4-6 year old children start to show clear thinking process. Children start to understand some symbols like language and pictures. Children's mastery of language has been systematic, that children can do symbolic games.

Cognitive development is the development of mind. Mind is part of the brain, which is used to understand, reasoning, knowledge, and understanding. Cognitive is a process of thinking, individual ability to connect, appraise, and consider an event. In this case, Susanto (2011:47) states that, "cognitive process is linked with intelligence, marking someone to a lot of interests, most importantly directing to ideas and learning."

4-6 year old children is in the pre-operational stage (2-7 year old), in this stage children start to show a clearer thinking process than the previous stage, children start to know symbols like pictures and languages. Numbers and numeral symbols are part of cognitive development that should be achieved in early childhood. This becomes a foundation of another numerical concepts on the next formal education levels. Number is an abstract object, introducing it must take it to the form of concrete items.

Numbers are notated to a numerical figures, numeral. Numbers with numeral figures state a different concepts. Number is linked with values but numeral figures is just a written notation of a number. Number represents how many item it is (Sudaryanti, 2006: 1).

Benefit of number cards as a media to

introduce numbers and numeral symbols for early childhood children are: a) Children interacts directly to their environment, b) There will be a uniformity of observation or children's learning perception, c) Improving children's motivation and interests, d) Serving a consistent and effective learning information, e) Serving messages or learning informations to all children, f) Solving the time and space limitation, and g) Controlling direction and speed of children's learning.

METHOD

The research was conducted in group A in PAUD Negeri 2 Banda Aceh. The research was conducted in the first semester of the academic year 2014/2015, from August to. September 2014. The timing of the study refers to the educational calendar for PTK requires several cycles that require an effective learning process in the classroom.

The research subjects are the entire students of class A PAUD Negeri 2 Banda Aceh on the academic year 2014-2015 totaling 25 people, consisting of 13 boys and 12 girls. Because the number of research subjects are not many and allowing as a whole, the authors take all the children to be used as research subjects.

Data required in this study were collected through observation. Observations is conducted to observe the responses of children during the learning process and the level of development of the children to know numbers and numeral symbols. To evaluate the response of children during the learning process, we used the Children Activity Sheets (LAA). To measure the children's development of knowing numbers and numeral symbols we used an observation sheet in the form of Work Assessment Rubric (RPK). The observations were done by a teacher from a local PAUD institution.

Data analysis techniques used in this research is using descriptive analysis techniques without ignoring quantitative. The collected data are described to explain, describe the activities that occur in the classroom when learning activities take place.

Performance indicators used to determine the success of a classical performance in this study were at least 75% of children are well developed, children are developing as expected, or research has been carried out in three cycles.

Stages in the classroom action research was started from the planning stage (the action plan), implementation (actions implementation), observation and reflection, followed by replan-

ning (Soedarsono, 1997:12).

Broadly, each cycle in this study are as follows:

a. Planning

On the planning stage of first cycle, what teachers should do are:

- 1 Preparing Weekly Activity Planning (RKM)
- 2 Preparing Daily Activity Planning (RKH)
- 3 Teachers make children's activity observation sheet and knowing numbers assessment sheet as the instruments.
- 4 Preparing number cards, stories, games, and contests as learning media which will be used in learning activities

b. Implementation

Next, teachers do the classroom actions implementation, by conducting learning activity corresponding to what has been described in RKM and put into RKH. The researcher's activities in this stage are:

- a. Teacher greets all children.
- b. Teacher engages children to read a prayer.
- c. Teacher talks briefly about the themes to be studied.
- d. Teacher delivers the themes with learning objectives.
- e. Teacher holds the cards that have been sorted, hold it right in front of the chest and facing towards the children.
- f. Teacher explains, steps to steps, how to play with number cards.
- g. Teacher shares the cards, that has been explained how to play it, to the children.
- h. Teacher asks children to watch the cards one by one, then continue it to the other children so all children gets to see it.
- i. Teacher use the game as the assessment method, putting back all the cards without the need to compile it.
- j. Teacher prepares three children to the contest, then teacher give the order to look for certain numeral figures.
- k. Teacher explains tomorrow's activity.
- l. Teacher leads the prayer before going back home.

All data obtained in this activities are noted carefully. Data yang diperoleh dalam proses kegiatan ini dicatat secara cermat. This is done in order to facilitate researchers in conducting data analysis

RESULTS AND DISCUSSION

Results

Data collected from the observation of children's work on the ability to know numbers and numeral symbol before treatment is that 10 children (40%) are yet to know numerical figures, 7 children (28%) have been able to know numerical figures, 5 children (20%) know numerical figures and enable to compile and sort it, and only 3 children (12%) know numerical figures and enable to compile, sort, and call the figures that is appropriate to the number of items in the picture.

Activity in cycle I, teacher conducts the learning by using number cards while storytelling. After the activity in cycle I, from the observations of children's work resulting in 7 children (28%) are yet to know numerical figures, 3 children (12%) have been able to know numerical figures, 10 children (40%) know numerical figures and enable to compile and sort it, and 5 children (20%) know numerical figures and enable to compile, sort, and call the figures that is appropriate to the number of items in the picture.

Activity in cycle II, teacher conducts the learning by using number cards while while involving children in games and contests. After the activity in cycle II, from the observations of children's work resulting in 2 children (8%) are yet to know numerical figures, 1 children (4%) have been able to know numerical figures, 12 children (48%) know numerical figures and enable to compile and sort it, and there is an increase that 10 children (40%) know numerical figures and enable to compile, sort, and call the figures that is appropriate to the number of items in the picture.

Based on that reality, after data from cycle II is obtained, children's development has been categorized to knowing numerical figures and able to call numbers sequentially, and the category of children that enable to compile and sort and call the figures that is appropriate to the number of items in the picture in the number cards, consisting of 22 children (88%). So we can say that criteria of accomplishment has been reach, that is the 75% of the children. This research results in the meaningful improvement of children's ability to know numbers in each of the cycle.

Student's response

Children's response in cycle I, 40% of the 25 children (10 children) have given a positive response, and 15 children (60%) have not given a positive response to the learning method of using number cards. But in cycle II, 24 of 25 children (96%) give a positive response to that learning

method, while 1 student (4%) have not given a positive response to the learning method. We can say that the students respond the activity positively if children enthusiastically participated in activities guided by the teachers.

Discussions

Counting one, two, three, and so on initially is not meaningful for children who are yet to understand numbers. Children can say it without knowing the meaning. Since children enable to talk, they can say one, two, three and so on only to imitate adults in the environments around them, without knowing the meaning. They don't know that numbers are symbols of the amount of something. We can observe this on 2 year old kid counting something. For children that is yet to understand numbers, counting can start from anywhere and repeat the numbers mentioned before is okay, no compiling, and the items that is counted is not corresponding to the amount.

If we compare the results obtained on pre-observation and implementations on cycle I, we can see an improvement, but without reaching accomplishment indicator that is expected by the researcher, so cycle II is necessary. This is caused by some obstacles happened in cycle I, so it needs a refinement in cycle II so that accomplishment indicator can be reached. Corresponding to the statement of Sudjana (2010: 67), learning reach accomplishment and considered successful if from the results, 70% children enable to call the numerical figures, compiling numbers, holding pencil correctly, and able to sort number cards or compile numbers with pictures, and write figures correctly.

Through the game, not only children are having fun playing but they also can know numbers without compulsion. For example, children jump corresponding the number cards that they got, sorting item sequentially, and taking items as many as what the number cards says.

Obstacles that were faced in the implementation of cycle I are: classical learning is less effective because of the use of number cards accompanied by stories is not so effective, and the time limitation of the implementation especially when children learn the concept of numbers making not all of them have the same amount of time to play with the cards, and the number cards itself is relatively a little too small.

Learning from those obstacles in cycle I, refinements are applied in order to solve the problems. The refinements are: 1) by implemen-

ting classical learning added with group learning, conditioning that all children in the group stay active when learning with number cards, 2) using the time effectively in doing the learning with number cards and give chance to children to learn concept of numbers under the guidance of teachers individually, and 3) enlarging the size of number cards that is used by teachers as example. After those refinements applied in cycle II, it turns out that the results is showing a significant improvement on every aspects of children's cognitive ability.

This research is resulting that using number cards as a media can improve cognitive ability of children in PAUD Negeri 2 Banda Aceh. This cognitive ability improvement is proven by the results of improvement in cognitive ability that is counted with percentage improvement of children who has cognitive ability in a category of pre-action or after action that is improving, where each cycle shows a good improvement.

Number cards can help children to learn concept of numbers because pictures are an appropriate visual media that is used by teacher to deliver the learning material. The use of number cards media in the improvement of cognitive ability for the children is designed to motivate students in studying so the children's cognitive ability can be improved.

The research results on children's cognitive ability is indicated by the percentage of each aspects of cognitive ability on pre-action and after action, where each cycle show a meaningful improvement. Other finding obtained is that the game of concept of numbers train children to work alone, confident, never feel hopeless, and never give up.

CONCLUSION

Conclusions of this research are; 1) Introducing numbers to early childhood children by using number cards can be done with stories, games, and contests. 2) Students' responses to the learning method of numbers introduction by the use of picture cards that is done with stories, games, and contests are generally positive. 3) The results of work method about numbers introduction by the use of number cards that is done with stories, games, and contests are generally good at the developmental aspect, that children can compile, sort, and mention numeral symbol corresponding to amount of items in the picture that are shown

REFERENCES

- Dahar, Ratna Wilis. 1988. *Teori-teori Belajar*. Jakarta: Dirjen Dikti
- Mansur. 2005. *Pendidikan Anak Usia Dini dalam Islam*. Yogyakarta: Pustaka Pelajar.
- Soedarsono. 1997. *Pedoman Pelaksanaan Tindakan Kelas*. Yogyakarta: Dirjen Dikti.
- Soedjadi, R. 2000. *Kiat Pendidikan Matematika di Indonesia*. Jakarta: Dirjen Dikti.
- Sudaryanti. 2006. *Pengenalan Matematika Anak Usia Dini*. Yogyakarta: Universitas Yogyakarta.
- Soemantri. 2004. *Psikologi Anak Luar Biasa*. Bandung: PT Refika Aditama.
- Suyadi. 2010. *Psikologi Belajar PAUD*. Yogyakarta: Pedagogia.
- Susanto, 2011. *Perkembangan Anak Usia Dini*. Jakarta: Kencana Prenada.
- Winkel, W.S. 1996. *Psikologi Pengajaran*. Jakarta: Grasindo.