Volume 1 Nomor 1 September 2016 ISSN 2528-0805

Jurnal Indria

Jurnal Ilmiah Pendidikan
Prasekolah dan Sekolah Awal

Indria

Indria | Volume 1 | Nomor 1 | September | Halaman 1 - 50 | ISSN 2528-0805

Volume 1 Nomor 1 September 2016 ISSN 2528-004X

Jurnal Indria

Jurnal Ilmiah Pendidikan PraSekolah dan Sekolah Awal

Indria	Volume 1	Nomor 1	Halaman	Pamungkas September 2016	ISSN 2528-004X

Jurnal Indria
E-ISSN 2528-004X
P-ISSN 2579-7255
Jurnal Ilmiah Pendidikan PraSekolah dan Sekolah Awal

Jurnal Indria
E-ISSN 2528-004X
P-ISSN 2579-7255
Jurnal Ilmiah Pendidikan PraSekolah dan Sekolah Awal

Vol 3, No 1 (2018): Maret

DOI: http://dx.doi.org/10.24269/jin.v3n1

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General Information	
Published:	2018-03-05
Number of Articles:	7
Number of Authors:	

JURNAL INDRIA
Jurnal Ilmiah Pendidikan Prasekolah dan Sekolah Awal
(Scientific Journal of Preschool and Early School Education)
JIN Volume III, Number I, March 2018, Pg.13-22
http://journal.umpo.ac.id/index.php/indria/index

THE EFFECTS OF TRADITIONAL GAME 'CONGKLAK' AND SELF-CONFIDENCE TOWARDS LOGICAL MATHEMATICAL INTELLIGENCE OF 5-6 YEARS CHILDREN

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Article History

Submitted:
October 2017
Approved:
December 2017
Published
March 2018

Keywords:
Traditional Games, self confident, logical mathematical

Abstrak

Tujuan dilakukan penelitian ini untuk adalah mengetahui adanya pengaruh permainan tradisional congklak dan percaya diri tergadap kecerdasan logis matematis. Konsep kecerdasan logis matematis dikemukakan oleh Howard Garnder melatarbelakangi munculnya pembelajaran pada anak usia dini yang mempertimbangkan potensi anak secara individual. Bermain merupakan cara anak belajar, permainan tradisional salah satu upaya untuk mengembangkan kecerdasan logis matematis. Percaya diri anak akan terbangun dan juga mempengaruhi kecerdasan logis matematis anak apabila dilakukan dengan permainan tradisional yang tepat. Untuk mengetahui bagaimana pengaruh permainan tradisional dan percaya diri digunakan penelitian eksperimen dengan analisis ANAVA diperoleh hasil bahwa permainan tradisional congklak dengan percaya diri tinggi berdampak lebih baik dibandingkan dengan permainan congklak dengan percaya diri rendah. Hasil analisis data juga menunjukan adanya pengaruh interaksi antara permainan tradisional dan percaya diri terhadap kecerdasan logis matematis dimana F hitung =114,023 lebih besar dari F tabel = 3,95 pada α 0.05.

Abstract

The purpose of this study was to determine the influence of traditional games 'congklak' and self-confidence towards mathematical logical intelligence. Mathematical logical intelligence concept proposed by Howard Garnder becomes the foundation of the emergence of the young learners teaching learning process that considers young learners individual potential. Playing is one of the ways for the young learners to learn and traditional game is one of the ways to develop the mathematical logical intelligence. By applying the suitable traditional game, both the students' self-confidence and the mathematical logical intelligence can be improved. In order to know the effect of traditional games and self-confidence to the mathematical logical intelligence, the experimental research using ANAVA analysis was applied. It was found that traditional game "congklak" with the high level of self- confidence students was better than those with the low self-confidence students. The result of the data analysis also showed that there was interactional effect between traditional game and self -confidence to the mathematical logical intelligence in which F observed =114,023 was bigger than l F table = 3,95 in the level of significance α 0.05..

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ISSN 2579-7255 (Print)
ISSN 2524-004X (Online)

INTRODUCTION

Playing plays a very important part for children since they can feel a sense of happiness and joy through it. Playing for early childhood is considered to be a great activity.

Traditional game is also one of the most enjoyable and culturally-valued play activities that can have positive impacts on the developmental aspects of a child and can develop the full potential of a child. Therefore, children can act their desires in imagining without thinking about the final result.

Games are children's means of experimenting in various ways, opened without limit. Games are something which is active, dynamic, and not static and that is not limited by space and time. They can be applied at anytime having a social and spontaneous social context. They can also be applied as a means of communication with peers and the environment.

Through playing activities, children will develop the concept of building their own knowledge to be gained. According to Piaget's theory, (in Santrock, 2009: 59) Piaget's view of child constructivism of having an active and constructive characteristic.

In addition to the Piaget concept, Gardner's theory of multiple intelligences states that there are many ways of children to learn and to use different levels of intelligence to learn a skill or concept. The multiple intelligences proposed here is one of mathematical logical intelligence.

Traditional games have also existed since ancient times and the paradigm of children's game technology is also changing. Indonesia is famous for its diverse cultures. When the traditional game values that have a meaning are extinct, then Indonesia will also lose its cultural characteristic of its regional peculiarities. Based on the results of the initial observation, the traditional games that are still played by children are *congklak, engklek, bentengan, jamuran, gobak sodor*.

Based on the research problems, the researcher wants to re-lift traditional games in the learning of children aged 5-6 years by showing the existence of traditional games influences towards mathematical logical intelligence. This study also indicated self-confidence as one of

the factors that could improve logical mathematical intelligence when using traditional games that fit the unique child concept.

LITERATURE REVIEW

Mathematical Logical Intelligence

Mathematical logical intelligence is intelligence in terms of numbers and logic. According to Solso, (in Suharnan, (2005: 158) logic is the science of thinking and mathematical logical is related to the scope of scientific ability. Sonawat and Gogri (2008: 35) identify mathematical logical intelligence as the ability to categorize, recognize symbols, inductive deductive thinking, organize and also communicate according to stages of scientific thinking systematically.

According to Gouws and Dicker, mathematical logical ability is applied to understand new concepts of mathematics related to objects directly related to science in which the concrete concepts also abstract are combined to gain systematic scientific stages.

The mathematical logical intelligence of various studies generally can be described as the ability of a person to solve simple problems, classify various objects, sort objects, match up, understand geometric concepts, number concepts, number operations, ask logical questions and reasoning abilities.

Traditional Games

Games are acts of playing as a means of children's learning. Hurlock, (in Suyadi, 2010: 284) defines playing as an activity to gain pleasure. Meanwhile, according to Dockett and Fleer (in Yuliani, 2009: 144), playing is the fulfillment of the needs for children, because through playing activities they will gain knowledge that can develop all the potential in them.

Catron and Allen (1999: 25) state that activities performed by playing are activities to increase an important part in himself and connect with others as well. One can find problems that are related to the level of intelligence and also cognitive development.

Traditional games also become fun activities. According to Danandjaja (in Ja; far, Fios, Yosep, (2014: 2), traditional games do not only provide recreational values or fun but they have the concept of

problem solving, the value of physical education, and social values. There are meaningful heredity folklore where the nature or characteristics of traditional games are old and its origin is unknown clearly when the games started to exist.

According to Ernawati (in Wulansari, 2017; 3), traditional games refer to every game dating back to ancient times and have been passed down from generation to generation. Traditional games come from a community culture as a distinctive feature and also a highly valued cultural heritage. Therefore, it needs to be preserved so that it will not be extinct and continue to exist from every generation of successors.

The development of knowledge and technology makes traditional games marginalized, while in fact, the games existing in this era are less developing children's aspects optimally. Muliawan, (in puspitasari and Julianto, (www.googlescholar.com). The significant difference between games existing today with traditional games is in the past the traditional time of the game did not only train the intelligence of the brain, feelings, and someone's emotion but also trained the balance of motion and the dexterity of the body which is very different from the modern games that make children less able to socialize.

The understanding of the traditional games concept in this study referred to traditional games named 'congklak' and also 'engklek' with the following elaboration:

The Traditional Game 'Congklak'

The 'congklak' game in Javanese is more popular with the term "Dakon". 'Congklak' is a simple game that can sharpen the child's reasoning power. Uniquely, this game applies a board that has 14 holes and 2 large holes that are on the left and right edge.

The implementation of traditional game 'congklak' is played through several stages. At the beginning of the game, each hole is filled with seven seeds, two players face each other to do a 'suit' (rock-paper-scissors) to determine who first starts the game. Someone who begins the game can choose the hole to be taken and put on one hole on his right and so on. If the seeds run out on the small hole of the sides then the player stops and takes the

whole opposite seed, but if it is empty on the opposite side the player stops and does not get any seeds. Then, another player continues the game. (http://pecintapermainantradisional.blogspot.com/2012/05/congklakj.html).

This game requires a strategy that must be done by the players so that at the end someone will get the highest number of seeds. In addition, fine motor hand coordination while holding the seeds will also make the children better in aspects of their development.

The games of 'congklak' and 'engklek' in early childhood learning are implemented more as a learning process involving the function of neurosensory applied in several stages of learning. According to Jamaris (2010: 81), especially in early childhood , learning through playing is used as a mental process and stimulation of brain development.

The 'congklak' game illustration performed in this study is illustrated in the documentation below:

Picture 1. Children are playing 'congklak'

Picture 2: Observation done when children are playing 'congklak'

Self-Confidence

The concept of self-confidence is a belief that must be controlled by children for the benefit of their life as they interact with others around them. According to Burns (in Desmita: 2011; 164), the self-concept relates to the attitude of self-belief.

Lirgg (online: 158), states that confidence is generally considered an important achievement in the stages of development. In early childhood education, all aspects of development are fostered and developed including confidence.

Self-confidence is a characteristic that affects individuals'

behavior. According to Oney and Gizem (online;149), "*Self-confidence is a defining characteristic capable of influencing individuals' behaviour".*

The implementation of children's confidence is done gradually in accordance with the stages of their development. The traditional games 'congklak' and '*engklek'* are also one of the activities that can stimulate every child development because through playing children can develop positive attitudes in them that show belief, self-adaptation and express opinion.

RESEARCH METHOD

This research method used was experiment. This research involved three variables including; (1) the independent variable; the traditional game, (2) the dependent variable of mathematical logical intelligence, (3) the self-confidence variable as the moderator.

The research design applied 2 x 2 factorial design. The sample of this research was cluster random sampling technique of 48 children of kindergarten group (Taman Kanak-kanak/TK) spread in the research location of TK Dharma Wanita Sonorejo with 'congklak' game and TK IT Nurul Huda Grogol with 'engklek' game treatment. Both are in the sub-district Grogol, Kediri Regency East Java Province.

The research design and dissemination of research samples are as follows:

Table 1: Factorial Design 2 x 2

B \ A	A1 Congklak	A2 Engklek
High (B1)	A1B1 (12)	A1B2 (12)
Low (B2)	A2B1 (12)	A2B2 (12)
Total	24	24

The types of instruments to be used were observations towards mathematical logical intelligence and also self-confidence of children developed by researchers based on theoretical studies and also the results of expert input in their respective fields.

Two-way ANAVA was used to analyze the data at significant level $\alpha = 0.05$. The requirements required in the analysis were normality test variance with Liliefors and homogeneity test with Barlett test. When an interaction was found, the process would be continued with *Tukey* Test.

RESEARCH RESULTS

Based on two-way ANOVA calculation, the following results were obtained:

Table 2. Two-way Anova Results

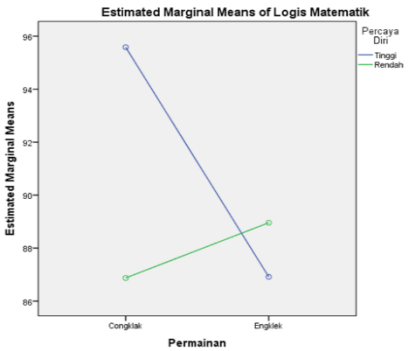
Varian source	db	JK	RJK	F_{hitung}	F_{tabel}	
					0,05	0,01
Traditional games	1	260,04	260,04	8,821*	3,94	6,92
Self-confidence	1	96,00	96,00	3,256*	3,94	6,92
Interaction (A x B)	1	1365,04	1365,04	46,302*	3,94	6,92
Mistakes	92	2712,25	29,48			
Total	95	4433,33				

Based on table 2 above, the results were obtained that the results of F_{count} of the traditional game was greater than F_{tabel} with significance level (sig) of less than 5% as 8.821 greater than 3.94.

Thus, there was a difference of mathematical logical intelligence on traditional games treatment.

Meanwhile, in term of self-confidence, it was obtained F_{count} was greater than F_{table} with the level of significance (sig) of less than 5% as 3.256 greater than 3.94. Therefore, there was a difference of mathematical logical intelligence with high and low confidence of children.

After the difference of traditional games results and self-confidence, there was an influence of interaction with presented result of F_{count} was bigger than F_{tabel} with the level of significance (sig) of less than 5% as 46.302 bigger than 3.94. An overview of the effects of interactions could be presented as follows:



Picture 1: AxB Interaction Graphic

Based on picture 1, it was known that the traditional games and also self-confidence influence lines met at an ordinal point or intersecting interaction line.

DISCUSSION

Based on the results of data, it could be concluded that:

1. The traditional game of 'congklak' has a better effect on mathematical logical intelligence. The results obtained were better in the traditional game of 'congklak' . It is because the game is used to hone the ability of the children's reasoning power. It takes a strategy to do this game

so the seeds are not taken off by the opponent.

2. The process of thinking in managing strategy in 'congklak' will improve the logical intelligence of the child on the concept of logical thinking ability. 'Congklak' would give better impacts on logical mathematical intelligence of children if the results of mathematical intelligence were achieved. Piaget also asserts that when children do 'congklak' children explore with their environment and also learn their own knowledge. If children are not given freedom of exploration then the children tend to be passive so they need to look for activities that can stimulate them more actively in increasing the mathematical logical intelligence including 'congklak'. This perspective viewed by Piaget is then more profoundly observed as constructivism, that is, children have an active and constructive characteristic. When children construct their own knowledge involving their mental process thought, there is a process of forming mathematical logics through a process until a new knowledge is found.
3. High self-confidence has a better effect on mathematical logical intelligence. Empirical data showed that children who have high confidence obtained a higher score than children who have low self-confidence. Similarly, in early childhood, self-confidence requires many factors to be developed because it is very important for the children's life. If children do not have high self-confidence, they will perform the activities with hesitation and a good self-concept will not be formed. Educators, parents or the community surrounding the children need to do related learning which can increase children's self-confidence more so that their development is in accordance with the stage of his age to form a positive self-concept. Children can improve their abilities if they get good stimulation and guidance from adults according to the stage of growth and development. Children's self-confidence is a child's ability to sustain the

development of his life as they interact with others.

CONCLUSION

Based on the results of research and discussion above, a conclusion can be put forward when you want to improve or develop the intelligence of children, especially mathematical logical intelligence, it can be done through traditional games. We should pay attention to the level of confidence of children.

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