Javanese traditional games as a teaching and learning media to socialize and introduce mathematics since early age

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Abstract. Play and Games are two aspects that are familiar and very close to children. The game can be an effective learning tool for early childhood. Traditional Javanese games can be a learning suggestion for kindergarten students to practice social skills and introducing mathematics in a fun way. Children will be more interested in learning mathematics. This study aims to develop traditional Javanese games that can train the ability to socialize and introducing mathematics from an early age. Traditional games developed include Dakon and Gejlig. The development of traditional games is based on the needs of kindergarten students to learn mathematics and learn to socialize. The sample in this study were thirty kindergarten students who were invited to study mathematics while playing. The Dakon game is played by two students. Through the Dakon game, students are trained to learn to count and recognize simple addition and subtraction operations by counting the seeds played. Students who win are students who at the end of the game Dakon get more seeds than their friends. Through the Gejlig Game, students know more about waking up flat through the game of Gejlig. Javanese Traditional games can be an interesting media for early childhood to learn mathematics and learn to socialize with their peers. The results of this study indicate that through traditional Javanese games, student can learn to socialize and learn about mathematical concepts, i.e addition and substraction and shapes.

1. Introduction

Playing is an activity tied to childhood and it is an integral part of growing up. Playing gives an incentive to growth; it is one of the forms of knowing the environment in which a child lives. Through playing, a child tests his/her own strengths and possibilities, checks gained knowledge and skills [1]. Free play in early childhood is a vital experience through which children learn social, conceptual and creative skills, as well as increasing their knowledge and understanding of the world around them [2]. Games can be use as a learning media to introduce mathematics concept and facilitate children to socialize with their friends. Many early childhood educators suggest that it is impossible to disentangle children’s play, learning and development [3].

Children demonstrate an interest in math well before they enter school. They notice basic geometric shapes, construct and extend simple patterns, and learn to count [4]. There are several early math content areas, i.e number and operations, geometry, patterns, measurement, and data analysis. Young children love to think mathematically. They become exhilarated by their own ideas and the ideas of others. To develop the whole child, we must develop the mathematical child. Further, teachers
enjoy the reasoning and learning that high-quality mathematics education brings forth from their children [5].

Mathematical material and concepts taught must be adapted to ability and stage of thinking that child concerned. Build curiosity children naturally about shapes, sizes, number, other basic concepts in math, care and what is interested in what the child said. This will encourage children to share experiences and their discovery. Acceptance of a number of mathematical activities carried out child. This will encourage self-confidence to keep thinking, asking questions and sharing [6].

Children's ability to understand mathematics is experiencing its development quite rapidly starting in pre-school age. On the beginning of the third year of his age, children already can use his fingers to show lots of things. Maybe on at that time the child made a mistake with the calculation, but it is a mathematical behaviour (mathematical behaviour) what he showed. At the age of 4 years, children have started can count. usually they can count 1-5 or 1-10, and you can mention the next number of a row of numbers. For example, teacher count 12345 then the teacher asks what number is next, then the child will answer In geometry, children already can recognize, group and mentioning the names of the shapes, well get up flat or build up a space various sizes and shapes also learn to use pointing words like up, down, left, right, center and others so. At the age of 4 or 5 years, child can already use the words inside sentence form to describe the location or certain position. In this golden age there are many activities that can be carried out by parents and mentors in the learning park to continuously improve the creativity of early childhood to continue to develop and be better to be ready for their development in the future [6].

But, today, the use of gadgets among early childhood takes a lot of attention from various circles. A common concern for many parents is how technology will affect their children’s social lives [7]. The use of gadget will make children more individuals. Children become less interactive and prefer to be alone with their comfort zone with gadget. It can result in individualistic attitude in children and they will less care about others whether their friend or someone else [8).

One of the way to socialize is by playing traditional games with their friend. It can be assumed with a fair amount of certainty that children all over the world share one common passion – they love playing games, be it traditional or contemporary. In most societies, traditional games form the backbone of a community or society [9]. However, most of the traditional games and sports, expressions of indigenous cultures and ways of life contributing to the common identity of humanity, have already disappeared and those that have survived are threatened by imminent disappearance and extinction under the combined effect of globalization and harmonization of the rich diversity of world sport heritage [10].

Social development is the achievement of maturity in social relations. It can also be interpreted as a learning process to adjust to group norms, morals, and traditions; merge into a unity and communicate with each other and work together [11]. To achieve social maturity, children must learn about ways to adjust to others. This ability is obtained by children through various opportunities or experiences to get along with people in their environment, both parents, siblings, peers or other adults [12].

One effort to develop early childhood social skills is to introduce children to traditional Javanese games. There are so many types of traditional Javanese games that can train early childhood to be able to learn to socialize with their peers. There are two traditional games used as a learning media to socialize and introduce mathematical concept to the student of Kindergarten, i.e. Dakon and Gejlig. All of these games require children to play physically active and can train to socialize with their peers because the game can only be played with several children. It is expected that the introduction of traditional Javanese games can be an effort to develop early childhood social skills and prevent the influence of addiction to gadgets. And also, it can be help the teacher to introduce mathematical concept through early age.

Two aspect that discussed before is the main idea of this study. This study aims to: 1) explain the types of traditional Javanese games that can develop early childhood social skills, 2) developing traditional Javanese games that can be a medium to introduce mathematical concepts to early childhood.
2. Methods
Experimental methods of this study is Research and Development. The procedure for developing traditional Javanese games has 7 steps, i.e.: 1) Collecting information and research. Measurement of needs, study of literature, research on a small scale, and consideration of considerations in terms of value. In this step, all the information about javanese traditional game was studied and collected; 2) Planning. Develop a research plan, including ability abilities needed in conducting research, formulation of objectives to be achieved with the research, design or steps of research, the possibility of testing in a limited scope; 3) Development of product drafts (develop preliminary form of product). In this step, the traditional game was developed so it can facilitate the children to socialize and introducing mathematical concept; 4) Initial field trials (Preliminary field testing). During the trial observations, interviews and distribution of questionnaires were held; 5) Revise the results of the trial (Main Product revision). Repair or refine the results of trials. At this step, the game was revised so it can be better; 6) Field trials (Main field testing); 7) Improvement of product results from field trials (operational product revision). In this step, the game was revised and completed with the rule of game.

3. Result and Discussion
3.1. Mathematical Concept for Early Age
Many early childhood educators suggest that it is impossible to disentangle children’s play, learning and development [8]. Many early childhood educators suggest that it is impossible to disentangle children’s play, learning and development [9]. Babies can distinguish between quantities and match numbers in small sets of objects, and at about two years of age children start to chant the counting words, though they may not be in the right order [10]. Between two and half to three years children are more accurate in their counting when asked to count with no obvious purpose and will be aware that adults use number and counting to solve real world problems. By age of three years children subitize (recognize the number of items represented without counting); name up to three or four objects; and select correct numbers of objects. By about five years children have a secure understanding of cardinal numbers; can subitize to five; and may recognize patterns to 10, for example on dominoes.

There are several things that need to be considered so that mathematics learning takes place effective and what works well which are expected. There are several tips for mathematics learning with children works well: 1) Perform repetitions Repetition can function as loading so the concept is more embedded in child's brain. Do it often repetition of mathematical concepts that are has been taught; 2) A conducive environment. Children will never be able to develop optimal in any case if it doesn't exist the conducive environment that supports it. Helps foster enthusiasm learning, appreciation and mastery mathematics in children is very important, the cause of the development of science knowledge and technology in the world today this, requires mathematical skills strong enough. 3) Make fun. Any learning will be very effective if the learning is fun. So, mathematics learning works effectively. 4) Use a variety of media Learning does not have to be faced with books and stationery, the teacher occasionally watched educative videos to children accordingly learning [6],

Game Principles Early Childhood Mathematics are: a) Math games are given gradually begins with counting objects or experience events concrete experienced through observation towards the environment; b) Knowledge and skills at math game given gradually according to the level of difficulty, for example from concrete to abstract, easy to difficult, and from simple to more complex; c) Math games will succeed if children are given the opportunity to participate and stimulated to finish own problems; d) Math games need pleasant atmosphere and taste safe and freedom for children necessary props / media with purpose, interest, and variety, easy to use and not endanger; e) Language used inside the introduction of the concept of counting should simple language and if lets take that example there is an environment around the child; f) In math games children can grouped according to the mastery stage counting is the concept stage, the transition period and lambing; g) In evaluating development results children must start from the beginning to last activity.
3.2. Social Skill in Early Age

Social skills come from skills and social words. The word skill comes from the word "skilled" used here because it contains a learning process, from being unskilled to being skilled. The social word is used because this training aims to teach one ability to interact with others. Social skills mean training that aims to teach the ability to interact with others to unskilled individuals who are skilled at interacting with people around them.

Social skills are an important part of human ability. Without having these skills humans are not smooth in interacting with others, so that their lives are less harmonious. The ability to socialize children is based on the age of child development, most children aged 3-4 years begin to socialize with their friends, but there are also those who prefer to play alone, children aged 5 years usually already have friends to play while in children aged 6 or 7 years can already playing roles, negotiating, collaborating and starting to form groups of playmates.

Lack of social skills causes behavioral difficulties in schools such as delinquency, non-attention, peer rejection, emotional difficulties, bullying, difficulties in friends, aggressiveness, problems in interpersonal relationships, poor self-concept, academic failure, concentration difficulties, peer isolation and depression. Social skills are the primary needs that children need to have for independence at the next level of life. This is useful in daily life both in the family environment and the surrounding environment. Given that social skills are very important in everyday life, social skills should be instilled in children as early as possible.

The rise of gadgets as a tool to play among early childhood has an impact on social skills. In ancient times early childhood spent time playing with friends, family, or in the surrounding environment that could have a good impact on children's social skills. Children become accustomed to communicating and interacting socially with their surroundings. Unlike early childhood today, most of them like to spend time playing games on gadgets. This makes children less interacting and communicating with the surrounding environment. The child will only be busy with himself and with the gadgets he plays. This situation makes the child become apathetic. Even though as explained above, there are several aspects that need to be developed in early childhood, aspects that must be developed and embedded in children, including cognitive, linguistic, religious and moral and social aspects. Social includes tolerance, caring, mutual respect, mutual respect, cooperation, empathy and so on. In this regard, several efforts need to be made to train children's social skills. One way is to invite children to play traditional games that can train early childhood social skills.

3.3. Javanese Traditional Games to Develop Social Skill and Mathematical Concept

For children, playing has very important benefits, playing is not only for pleasure but also a need that must be fulfilled. Through playing activities, children can learn about themselves, others and their environment. Children usually experience sensitive periods, where children begin to be sensitive to accept various efforts to develop all potential. This period is a very good time and is suitable for laying the foundation for growth in developing physical, cognitive, language, social emotional abilities, self-concept, discipline, art, morality, and religious values.

There are many types of Javanese games that can be developed to train early childhood social skills, including the following: hide and seek (dhelikan), benthik or gatrik, GobagSodor, Gundu, Oray-orayan, Gasingan, Congklak or dhakon, and Pecle (Gejlig). All of these games require children to play physically active and can train to socialize with their peers because the game can only be played with several children. The results of the study by Nuraida and Milyartini (2016) show that children's social skills were observed when the pre-cycle until the second cycle ended with a significant increase. So the activity of playing angklung to improve children's social skills is considered successful. Because 75% of the number of children who play angklung are included in the category of having good social security.

Dakon is a simple game that honed children's reasoning power. Uniquely this game trains the child's trading spirit, and the sharpness of thinking to take advantage. In general the Dakon board is
made of wood and plastic and a type of clam shell used as Dakon seeds and if not present, sometimes also grains from plants are used.

The Dakon game uses a game board that has 14 holes and 2 large holes on the left and right ends (Figure 1). Each of the 7 small holes on the side of the player and the large hole on the right side are considered to belong to the player. This game can only be played by 2 people. Dakon initially each small hole is filled with seven seeds. One who starts (usually does a suite to determine who is first) can choose the hole to be taken and put one to each hole on the right and so on. When the seeds run out in a small hole that contains other seeds, he can take the seeds and continue filling, if it runs out in his big hole then he gets a special opportunity by choosing a small hole on his side. If it turns out to run out in a small hole on the side then he stops and takes all the seeds on the opposite side. But if it stops at an empty hole on the other side, it stops and gets nothing.

![Figure 1. Dakon board](image)

The game is considered complete when one of the players has no more seeds to take (all seeds are in the big hole on the right and left sides of the player). Winners are determined by those who get the most seeds. This game will teach student to count. This is important because the ability to count on is essentials percursor to more complex math lessons such as addition. The ability to identify complex pattern allow children to successfully make prediction and anticipate what comes next [12].

Gejlig or Engklek is a traditional game of Indonesian children, with the basis of the game being predominantly played by female children. In the crank playing procedure, players generally have to lift one leg and jump with one leg past the boxes in the crankcase. This game requires a runway (it can be from tiles, shards, or change) to throw. At a higher level the player must carry a pacemaker on his palm and put it on his head while jumping on one leg. There are various variations in the rules of the game and the procedures for playing in this game.

Engklek is usually played by 2 to 5 girls and carried out in open areas (Figure 2). In some areas, the crankships have different names in some region. Although in some regions different names or designations, but in the pattern of the game remains the same and is more dominated by girls. Following this, some forms of crunches. In the crank game there are values contained in each game such as training discipline, agility, socializing, and health. In other words, crank play also has the implied values of each game. As players must obey the rules of the game, this trains children early to be more disciplined in everything, and train their children physically and mentally, such as making jumps on one leg, it also has the benefit of exercising a child's physical balance and mentality when the player is there which was declared defeated.
In the ordinary Engklek game, the shape of the crank is played the same, which consists of several square and half circles. But in the crank game developed in this study, the teacher provides several choices of flat shapes that students can freely choose. Children arrange these buildings to be skipped like in the crank game. Another difference with ordinary crisps is that if usually the thrown pieces come from tiles or ceramics that have an irrelevant shape, then in this game, the cast thrown is provided by the teacher in the form of various small flat shapes. Children are free to choose the color and flat shape they like.

With these activities, students play while learning to recognize flat shapes. Fun activities in learning can be a motivation for liking mathematics from childhood. You can also continue the game by grouping a large flat building and a small flat building with the same shape. Sorting shapes encourages children to think of many different ways that the shapes can be grouped by paying attention to the attributes of the shapes. This game will give them experience in thinking creatively and considering several possible solutions. There are no correct answers in this game of exploration. The children will begin to learn new words to describe the colours, shapes and their groupings [12]. Successful sorting is requires careful observation of small details and precise organization [13].

4. Conclusion
Traditional Javanese games developed in this study are expected to be fun and interesting learning media for Kindergarten students to be able to develop social skills and get to know mathematical concepts better from an early age. Dakon games can be used by teachers to introduce the concept of numbers to students, while the game Gejlig or Engklek can be used as a medium to introduce students to the concept of Geometry. Students can recognize various shapes in a way that they like, for example they can recognize circles, squares, rectangles, triangles and other shapes. Because both of these games are carried out together with groups and in pairs, it is also expected that with this game students cannot learn to socialize with the environment, both with the teacher and with their peers.

5. References
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