



# Saringgong: An Alternative Media for Slow Learner Students in Learning Mathematics

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**Abstract-** The purpose of this study is to describe the traditional Indonesian game (namely Saringgong) as a medium for slow learner students in learning mathematics. Saringgong is a game that utilizes gravels as a medium. This research is a descriptive study with a qualitative approach, the method that used is ethnography. Data were collected by using ethnographic principles, such as interviews, observations, documentation, and field notes. The results of this study illustrate that the traditional game Saringgong can be used as an alternative learning medium for Slow Learner students to practice numeracy skills, increase focus and motivation of students in learning mathematics.

## 1. Introduction

Indonesian law mandates that every citizen has the same opportunity to obtain education. The state, government, family and parents are obliged to provide extended opportunities for children to get an education. Everyone has the right to school, including Children with Special Needs (ABK).

Jannah explained that ABK is a child who is in the process of growth and development experiencing physical, mental-intellectual, social and emotional abnormalities compared to other children in same age, therefore they need special education services (Jannah & Darmawati, 2014). According to Desinigrum & Ratri (2016), children with special needs are children who need special treatment because of developmental disorders and abnormalities. Children with special needs classification includes: (1) children with physical disorders, namely: visual impairment; deaf; and tunadaksa, (2) children with emotional and behavioral disorders, namely: tunalaras; speech impaired; and hyperactivity, and (3) children with intellectual disorders, namely: mental retardation; slow learners; children with special learning difficulties; talented kid; autism; and indigo.

Based on this understanding, it can be concluded that children with special needs need special handling, including in terms of education. To provide educational needs for students with special needs, the Indonesian government has provided school facilities known as extraordinary Schools and Inclusion schools. Extraordinary Schools is a special education system that separates normal children and children with special needs, children with special needs are placed specifically according to their needs. While inclusive schools are schools that provide opportunities for all students who have disabilities or potential intelligence and /or special talents to learn in the same school as students in general.

Slow learner students are one type of students with special needs who need special education services. Shaw (2010) states that the characteristics of students who are slow to learn are: (1) They appear at a higher level when information is presented concretely. The more abstract concepts are increasingly difficult to learn. (2) They cannot transfer or generalize skills, knowledge, and strategies like their peers. They tend to learn what is taught quite well, but have difficulty transferring and applying concepts taught in new situations. (3) They have difficulty in organizing new material cognitively and assimilating information that enters the information obtained previously. (4) They have difficulty with long-term goals and time management. (5) They often need additional training and more time to develop the same academic skills as their peers.

Based on those characteristics, mathematics lessons will look increasingly difficult for students who are slow to learn. Mathematics teachers must be able to understand the characteristics possessed by students, especially students who learn slowly, so that teachers can prepare learning strategies that are appropriate for students with special needs and normal students.

Shaw (2010) mentions that there are several ways that can be used to support the learning process of slow learner, namely: using concrete instructions, providing opportunities for repetition, practicing discrete skills that are applied to different challenges, helping students develop time management and skills basic, completing tasks into short discrete elements, using various activities and computers, compiling instructions to strengthen learning, rewarding students' efforts, undertaking various ways to demonstrate student competency, pairing students with peer mentors, linking academic learning with contextual experiences, encouraging student involvement in activities they enjoy.

Research conducted by Aziz & Prabowo (2015) suggests several attempts have been made by teachers, namely (1) planning mathematics learning with applicable curriculum standards, (2) when implementing the learning process, teachers use the regular classroom model by pulling out, which means students who learn slowly with other children in regular classes, but in a certain time students with special needs are drawn from regular classes to the learning resource room to study with special teacher assistants, and (3) after learning the teacher evaluates and follows up. However, these efforts have not given maximum results. This is allegedly because: (1) the teacher decides to make only one lesson plan to be used in inclusive classrooms by referring to the needs of regular students (2) when the teacher explains the material by the lecture method, students who are slow learning are busy with their own activities, and (3) The use of models, methods, and learning media for students who are slow to learn are equated with regular students. In fact, the needs of slow learner students are different with regular students, especially in learning media. Slow learner students need media that can help them solve abstract problems.

Based on this, learning media that can accommodate the needs of slow learner are needed. Chauhan (2011) states that the characteristics of slow learner student are having low memory and difficulty in conveying ideas. Therefore, in designing learning it is necessary to pay attention to appropriate learning media. One alternative is to use game-based learning media, so that it can attract the attention of slow learner students and make their concentration refocused.

According to Wijaya (2009) game-based learning has advantages over conventional learning (without using games). This is supported by the opinion of Kebritchi & Hirumi (2008) which states the advantages of game-based learning, that are: 1) Emphasis on action rather than verbal explanation, 2) Foster motivation and personal satisfaction, 3) accommodate various learning methods, 4) Improve the ability to make decisions, and 5) Interactive.

Interactive is the advantage of games that can be utilized in developing social interaction in inclusive classes, it means slow learner students can interact freely with regular students Wijaya (2009) said interactive is one of the characteristics of most traditional games in Indonesia because traditional games are played in groups. The most basic thing from group games is communication and interaction between players. This situation will indirectly make slow learner students feel not marginalized in the inclusion class. In addition, the use of traditional games in learning needs to be accompanied by class discussions to discuss and develop informal mathematical knowledge gained from the game into formal and abstract mathematical concepts.

Traditional games also contain cultural values. (Rusliah, 2016) explains that education and culture have a very important role in growing and developing our cultural values, which have an impact on character building based on cultural values. The process of learning mathematics that contains cultural values is called ethnomathematics. Borba (1997) mentions that ethnomathematics can be described as a way in which people from certain cultures use mathematical ideas and concepts to deal with the quantitative, relational, and spatial aspects of their lives.

D'Ambrosio (1993) in his writings explains the purpose of ethnomathematics, the mission of the ethnomathematics program is to acknowledge that there are different ways of doing mathematics by considering the appropriation of the academic mathematical knowledge developed by different sectors of the society as well as by considering different modes in which different cultures negotiate their mathematical practices. According to Rosa & Orey (2011), ethnomathematics makes learning more meaningful, so that it can develop students' intellectual, emotional, and social through cultural uniqueness. Septiawati et al. (2017) states that in the field of education, ethnomathematics can be used to express ideas in cultural activities or social groups to develop a mathematics curriculum. Thus mathematics can have different forms and developments according to their respective cultures.

Some researchers have conducted research on traditional games that can be used in learning, especially mathematics learning. Among them was Nataliya (2015) study, which looked at the effectiveness of traditional Congklak games. Congklak Game is a traditional game that is performed by two people using a congklak board and 98 congklak seeds. The results of his research show that this game was effective in improving students' numeracy skills. Furthermore, research conducted by Prahmana et al. (2012) namely the Permainan Tradisional Tepuk Bergambar (PT2B). The results stated that PT2B can stimulate students to understand the concept of multiplication. Another study is about traditional Jirak games, according to the results of Nizaruddin et al. (2017), students' mathematics learning achievement using traditional Jirak games was higher than student learning achievements with conventional learning. From several studies, there are no researchers who have conducted research on traditional games originating from Kerinci Regency, namely Saringgong. In fact, this game can be used to learn mathematics. Therefore, researchers are interested to describe how the application of this game in learning mathematics.

## 2. Methods

This research is a descriptive study with a qualitative approach that aims to describe the Saringgong game for slow learner students in learning mathematics. The method used is ethnography, ethnography is used because researchers want to express mathematical ideas contained in Saringgong traditional games. Data were collected using ethnographic principles, such as interviews, observations, documentation, and field notes. First, the researchers explained how to play the game to participants, then when they played, student activities were recorded, they were interviewed to see their interest in this game. There were 2 types of Saringgong games, Saringgong with 14 and 50 gravels. Every player needs at least 2 people to play this game.





## 3. Result and Discussion

One of the traditional games in Indonesia (precisely in Kerinci Regency) is Saringgong, this game is a simple game using gravel as its medium. Saringgong is an alternative game that can be used to practice adding numbers. This game involves motor hand movements, children's numeracy skills, and demands focus on the game. So, this game is suitable for students with special needs, especially slow learner. This game is classified into two types, there are:

### (a) Saringgong Game with 7 Gravels

The number of participants in the game must be at least 2 people, each participant must have 7 gravels. So the total is 14.

**Table1.** Saringgong 7 gravels

The steps	Pictures
<p>a. Participants draw to determine who will start the game first</p>	
<p>b. The first player throws gravels to the floor</p>	
<p>c. Players take one pebble, then throw it up while taking another gravels on the floor with the rules of taking 1, 2, 3. Hands should not touch gravels 2 (two gravels) and gravels 3 (three gravels) when taking gravel 1, and also don't drop a gravel thrown up. If a gravel falls or the hand touches another pebble, then turn to move to the next participant.</p>	
<p>d. After all the gravel are in the palm, throw the gravels up and turn the palm so that the pebble is behind the hand, then flip it over so that it is in the palm. The more pebbles captured the better.</p>	






Then do steps a through d repeatedly until the number of gravels obtained is 20 (or according to mutual agreement). Every multiple of 20, the number of 7 gravels reduced one, until the gravel runs out. The pattern of taking gravel after the amount of gravels are reduced are:

- For 6 gravels, the pattern is: 1, 2, 2
- For 5 gravels, the pattern is: 2, 2
- For 4 gravels, the pattern is: 1, 2
- For 3 gravels, the pattern is: 1, 1
- For 2 gravels, the pattern is: 1

## (b) Saringgong Game with 25 Gravels

Each participant must have 25 (or more) gravels. Participants must be at least two people. If the number of participants are two, that means the number of gravels for both participants are 50.

**Table2.** Saringgong 25 gravels

The Steps	Pictures
<p>a. The gravels that the participants have are collected and thrown to the floor</p>	
<p>b. Participants draw to determine who will start the game first</p>	
<p>c. The gravels taking pattern are not determined as is the game with 7 gravels. Taking a gravel is done by throwing one gravel up while taking a gravel on the floor, with the condition that the hand must not touch another gravel on the floor (for example if you take 2 gravels, the hand cannot touch the pebbles next to it). If touched, the turn will be moved to the next participant.</p>	
<p>d. And so on until 50 gravels are not left on the floor.</p>	
<p>e. Each participant adds up each gravels that was successfully taken. The winner is the participant who collected the most gravels.</p>	

Based on the Saringgong game steps described above, it can be seen that playing games can make it easier for students to be more active and careful in moving their hands, this requires student focus and concentration. In addition, students are also trained to count natural numbers in large enough quantities.

#### 4. Conclusion

Slow learners are one type of children with special needs who have low memory and lack concentration, and are difficult to convey ideas. Therefore, special education service is needed for them. One alternative is using game-based learning media, which can attract the attention of slow learner student to refocus their concentration. Saringgong is one type of traditional games from Indonesia (Kerinci Regency) that can be used for training on adding numbers. This game involves the motor movements of the hand, children's abilities in count, and focus in play. So, this game is suitable to be used as a learning medium for slow learner students. However, in this paper the researcher is limited to describing how the Saringgong game is performed, researchers have not statistically tested the effectiveness of the use of this media in learning mathematics for slow learners.

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