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## Improving Simple Calculation Ability In Student With Intellectual Disabilities Using The Guess Game

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### ABSTRACTS

Students with intellectual disabilities often have difficulties in simple arithmetic so that the expected learning objectives are not achieved, the purpose of this study is to improve the simple arithmetic ability of fourth-grade students of Special school Putra Pasundan 1 Banjar city. This research method uses classroom action research that takes place in two cycles, each cycle consisting of 2 meetings, the research subjects are 4th grade Student With Intellectual Disabilities with mild mental retardation. The data collection technique used is observation and test learning outcomes. The data analysis used is descriptive qualitative which consists of 3 stages, namely (1) data reduction, (2) data display, and (3) making conclusions and verification. The data collected shows that number guessing games can improve simple counting skills in fourth grade mentally retarded children at the Special school of Putra Pasundan 1, with pre-test/pre-cycle data, no students can reach the minimum assessment limit and the percentage in cycle 1 is 50% or 2 students, who get scores that meet the minimum assessment limit have shown an increase after cycle 2 is carried out all students (4 students) have reached the standard limit minimum assessment in percentage that is 100%. In addition, the use of guessing games increases active participation, is more motivated, has a sense of togetherness, and fosters self-confidence. This research is useful for teachers to guide Student With Intellectual Disabilities in learning simple arithmetic, especially adding up using number guessing games.

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## 1. INTRODUCTION

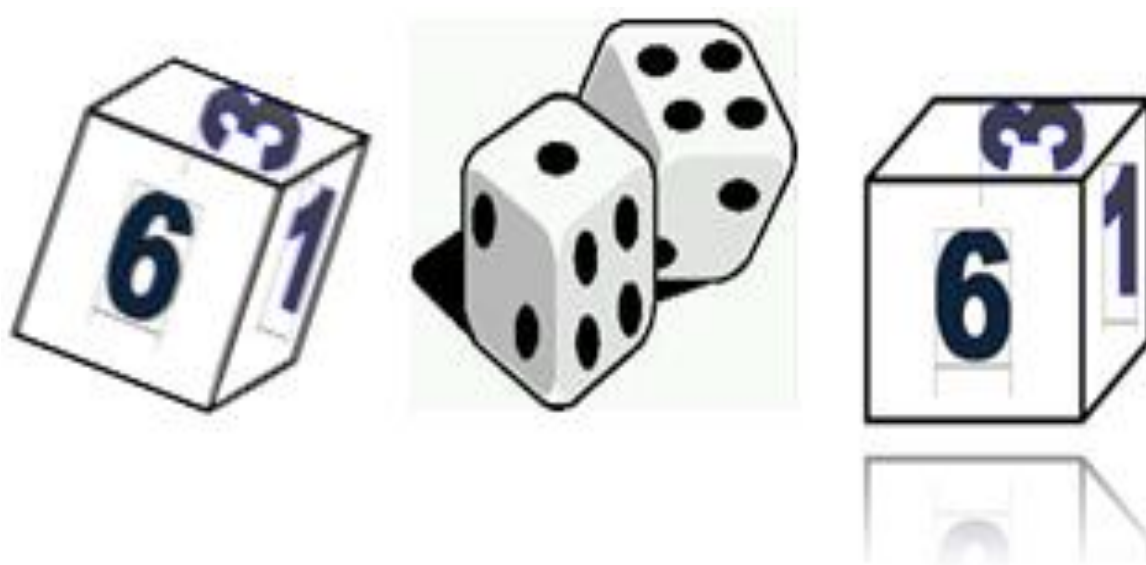
Children with mental retardation are children who have intellectual abilities or intelligence below average which results in delays and obstacles, are slow in abstract thinking, and will be even more difficult if academic activities rely on thinking (brain)/abstract abilities.

Counting lessons are basic skills that humans must have, according to [Arianti and Muslimin \(2015\)](#), reveal that counting is one of the children's learning tasks that must be learned well, in addition to learning to write and read. Reaffirmed that if the difficulty in learning to count is the most common type of learning difficulty besides reading and writing. Counting is an activity related to addition, subtraction, recognizing the symbols of numbers, besides that the ability to count is included in the field of mathematics that is always found in everyday life, according to [Pang and Ling \(2012\)](#). Counting is a lesson that is generally in the form of abstract concepts so it is necessary to create a conducive learning atmosphere, among others, through the cooperation of group members to help work on solving calculation problems. Through face to face, interaction allows the availability of learning resources varied to optimize the achievement of learning goals, methods that need to be applied in developing numeracy skills beginning in children is to do games were fun, create an atmosphere of learning exciting and build interest in the child to be interested in taking a lesson count. according to [Arianti and Muslimin \(2015\)](#) also explained that the introduction of the concept of counting for children using the game method will make it easier for children to understand the meaning of the lesson in accordance with the Core Competencies and basic competencies of mathematics subjects (2016) for class IV which we will examine include: 4.1 Counting the results of the addition of two numbers whose results are up to 30 using concrete objects.

According to [Nolan and McBride \(2014\)](#), games are one of the dominant forms of social activity in early childhood. The cognitive function of the game is to help children's cognitive development. Through games, children explore their environment, study the objects around them, and learn to solve the problems they face. The number guessing game is a game made from modified dice blocks with some changes in physical form and how to play, with modifications, it is hoped that this game can become an effective medium for mentally retarded children in learning to count.

Dice game from Latin: datum, which means "given or played", is a small object that is generally in the form of a cube that is used to generate random numbers or symbols. Dice are used in various games in society of course there are positive and negative aspects, the teacher must be able to explain as best as possible there is a negative side to this dice game, the dice can be used alone (1 piece) or in pairs (2 pieces) or more. In the guessing game in this study, the dice block was modified. **Figure 1** shows the image of the dice commonly used in playing, modified every the side of the dice is not a dotted / circle image but is converted into a number symbol 1 to 18, with details: 1 to 6, 7 to 12, and 13-18).

Currently, many studies discuss numeracy such as the following: Early/pre-school age is an effective age for developing various potentials of children. This development effort can be done in various ways, including through counting games. Counting games in Kindergarten are not only related to cognitive abilities, but also mental, social, and emotional readiness, therefore in their implementation it must be done in an interesting, varied, and fun way.



**Figure 1.** Dice block (modification).

According to [Arianti and Muslim, \(2015\)](#) the purpose of learning to count children aged early as learn to think logically and mathematically in a fun and uncomplicated. So it is not so that children can count to one hundred or one thousand, but to understand mathematical language and its use to think. Regarding the case of this also revealed some of the principles in teaching math to children, such as making the learning that is fun, inviting children engaged in direct, building desire and trusting yourself to complete activities of arithmetic, respecting mistake child and do not punish him, focus on what the child achieves ([Moyer, 2001](#)). There have been many studies on counting but until now there has been no research that discusses Improving Simple Counting Ability in Children with Intellectual Requirements Using Number Guessing Games.

Student With Intellectual Disabilities often have difficulty in simple arithmetic so that the expected learning objectives are not achieved, the purpose of this study is to improve the simple arithmetic ability of fourth-grade students of the Special School of Putra Pasundan 1 Banjar City. This research method uses classroom action research that takes place in two cycles, each cycle consisting of 2 meetings. The research subjects are 4th grade Student With Intellectual Disabilities with mild intellectual disabilities. The data collection technique used is observation and test of learning outcomes.

The analysis of the data used is qualitative which consists of 3 stages, namely (1) data reduction, (2) data display, and (3) making conclusions and verification. The data collected shows that number guessing games can improve simple counting skills in fourth-grade students with intellectual disabilities at the Putra Extraordinary School Pasundan 1, with pre-test data no students have reached the minimum assessment limit and the percentage in cycle 1 is 50% (2 students), who got a score that met the minimum limit had shown an increase after cycle 2 was carried out all students (4 students) had reached the minimum assessment limit or 100%. In addition, the use of guessing games increases active participation, is more motivated, has a sense of togetherness, and fosters self-confidence. This research is useful for teachers to guide Student With Intellectual Disabilities in learning simple arithmetic using number guessing games.

## 2. METHODS

**Methodology** This research uses qualitative research, according to Gumilang (2016) this study has two characteristic main, namely: First, the data is not shaped figure, over many such narratives, descriptions, stories, documents written and unwritten, Second, qualitative research does not have a formula or rule of absolute to process and analyze data.

### 2.1. Subject and location research

This study involved 4th grade Student With Intellectual Disabilities at Special School Putra Pasundan 1 Banjar, the 2017 - 2018 school year, totaling 4 students who were the subjects that would be used as classroom action research. The 4 students consist of 1 female student and 3 male students.

### 2.2. Research procedures / classroom action research

This study focuses on number guessing games as an effort to improve simple counting skills (summing) in fourth-grade students with intellectual disabilities in Special Schools. The flow of this research includes (i) Planning, (ii) Implementation, (iii) Observation and (iv) Reflection. **Figure 2** describes the research flow that begins with the teacher planning learning by preparing all learning tools and carrying out learning activities with peers actively participating in observing during the beginning, the process until the end of learning, then the reflection is carried out, namely discussions with teachers and observers to discuss the results, weaknesses and look for solutions to solve them.



**Figure 2.** Classroom action research flow.

### 2.3. Activity procedure

Classroom Action Research (CAR), using the flow or steps described as follows: Planning, at this planning stage, researchers and colleagues together develop an action plan based on problems in the field, such as (i) Formulating a Mathematics lesson plan using a guessing game that will be carried out in each cycle. (ii) Prepare an observation instrument on the material for adding two numbers up to 30 with number guessing games, an instrument for teaching activities in the teaching and learning process in the classroom. (iii) Develop test kits to determine the ability of students, in the matter of adding two numbers to 30 through number guessing games. (iv) At this stage, we also give an initial test (pre-cycle) to find out student learning outcomes in the addition of two numbers up to 30. The results of the initial/pre-cycle test serve as reasons and criteria that are useful for measuring or knowing any changes. or an increase after we did the act of learning the addition of two numbers up to 30 through a number guessing game.

**Implementation of Actions** This stage is the implementation (implementation) of all the plans that have been made which take place in the classroom in the form of activities carrying out actions by carrying out the learning process based on the learning implementation plans that have been prepared previously. in the Mathematics lesson plan with competence: Counting the results of the addition of two numbers whose results are up to 30 using concrete objects. The steps taken cannot be separated from the applicable curriculum, and the result is expected to be an increase in learning. In this stage, the class

teacher acts as a researcher so that he can observe and find out the weaknesses that occur when the action is taken. Observation, in this stage, the observation step on the implementation of the action is carried out using the prepared observation sheet. To obtain accurate and objective data from observation, the observation is carried out not only by the researcher but also by one teacher/colleague. The results of observations in the form of notes about all activities of the teaching and learning process from beginning to end.

Reflection in this stage of reflection, researchers and observers/colleagues discuss the results obtained through these observations. Based on the results of this observation, the changes that occur are reflected. Apart from that, we (researchers and colleagues) will be able to find out the effectiveness of number guessing media on students with Student With Intellectual Disabilities in class IV Special Schools. Based on the results of this reflection, it will be known the weaknesses of the teaching and learning process, which are used as the basis for determining actions in the next cycle. This research will be carried out on students in two cycles, it is hoped that there will be an overview in this classroom action research to see whether or not guessing games are effective in learning mathematics about adding up two numbers to 30.

#### 2.4. Research Instruments

The data collection techniques used are observation and learning outcomes tests / objective tests. Observation as a data collection tool is widely used to measure individual behavior or the process of an activity that can be observed both in actual situations and artificial situations. includes two things, namely (i) Observation of the teacher's implementation in learning the addition of two numbers to the number 30 through number guessing games. (ii) Observations on the activities of students in learning the addition of two numbers to the number 30 through number guessing games. Tests of Learning Outcomes in the form of objective tests, according to [cohen et al. \(1990./\)](#) test objective is the test that the examination can be conducted in an objective, is certainly due to only having one possible answer correctly. It is carried out using formative tests in each cycle in the form of giving assignments (either in the form of questions that must be answered), or orders (which must be done) by the testee, so that a score that symbolizes the behavior or achievement of the testee can be generated. The number of questions is 20 questions, which include: Adding 2 numbers under 10, Adding 2 numbers under 15, Adding 2 numbers under 20, Adding 2 numbers under 25, Adding 2 numbers under 31.

### 3. RESULTS AND DISCUSSION

#### 3.1. Student Condition

The condition of students has obstacles in intelligence, social adaptation, problems in self-maintenance, problems in learning, however, they still can develop in basic academic fields, **Table 1** describes Student With Intellectual Disabilities who are used as research subjects as follows:

**Table 1.** Research subject conditions.

No	Student's name	P/L	Class	Resistance
1	HA	L	IV- SDLB/C	Counting
2	YA	L	IV- SDLB/C	Counting
3	FI	P	IV- SDLB/C	Counting
4	FM	L	IV- SDLB/C	Counting

The obstacles experienced by students in learning have the same tendency, namely being slow in learning, by observing and giving oral tests, HA and FM students in arithmetic are better than YA and FI students although they still experience obstacles, in terms of language and motor skills there are no obstacles.

### 3.2. Learning Process Activities

Learning activities are carried out as follows: (i) Initial activities consist of Introduction, open learning by using apperception, convey today's goals and activities (ii) Core activities consist of Explaining what activities will be carried out by providing directions, preparing tools or materials to be used. used for guessing numbers games, guiding students to play guessing numbers with modified dice media. Continuing to hold learning discussions by providing opportunities for children to ask questions, discuss, try and explore the material, (iii) The final activity consists of final test/question and answer, draw conclusions, reflection and follow-up, closing the lesson.

### 3.3. Results of Research Activities

The student learning outcomes presented are the results of learning during the implementation of the study after learning 2 meetings for each cycle, as well as improvements according to the agreement in each cycle. In **Table 2**, the data on the test scores of learning outcomes obtained by conducting the initial/pre-cycle test as a starting point for research and learning outcomes tests are presented in each cycle. **Table 2** shows that each student in this study obtained learning outcomes after several tests were carried out, namely pre-cycle/pre-test, cycle 1 test, and cycle 2 test.

The teaching and learning process carried out by the teacher was observed using the teacher's performance observation sheet with 11 items, **Table 3** contains the results of teacher performance research in the form of an overview of the teacher's performance in the teaching and learning process and the improvement of the learning process in each cycle. In **Table 3**, it can be seen that there is an increase in teacher performance, in the pre-cycle action the average score is still less, namely 1.81, at the end of the cycle it can reach an average score of 3.18 in the good category, meaning that the indicator of teacher performance achievement is achieved because the teacher's performance is at least good.

Below are the results of observations on student behavior during numeracy learning using number guessing games. **Table 4** tells about student behavior during numeracy learning with number guessing games as many as 8 item questions, behavior development from pre-cycle to cycle 2 with its development. From **Table 4**, it can be seen that there is an increase in student behavior, in the pre-cycle action the average score is still less, namely 1.38, at the end of the cycle it can reach an average score of 3.0 in the good category, meaning that the behavioral achievement indicator is achieved because student behavior must be stated to be in the minimally good category.

**Table 2.** Student learning outcomes.

No	Subject	Pre Cycle Score	Cycle Score 1	2 cycle score
1	HA	45	60	80
2	YA	50	75	85
3	FI	45	70	85
4	FM	60	80	90



**Table 3.** Teacher performance analysis results.

Criteria	Pre Cycle	Cycle 1	Cycle 2
Total score	20	25	35
Average Score	1.81	2.27	3.18
Category	Not enough	Enough	Well

**Table 4.** Student behavior analysis results.

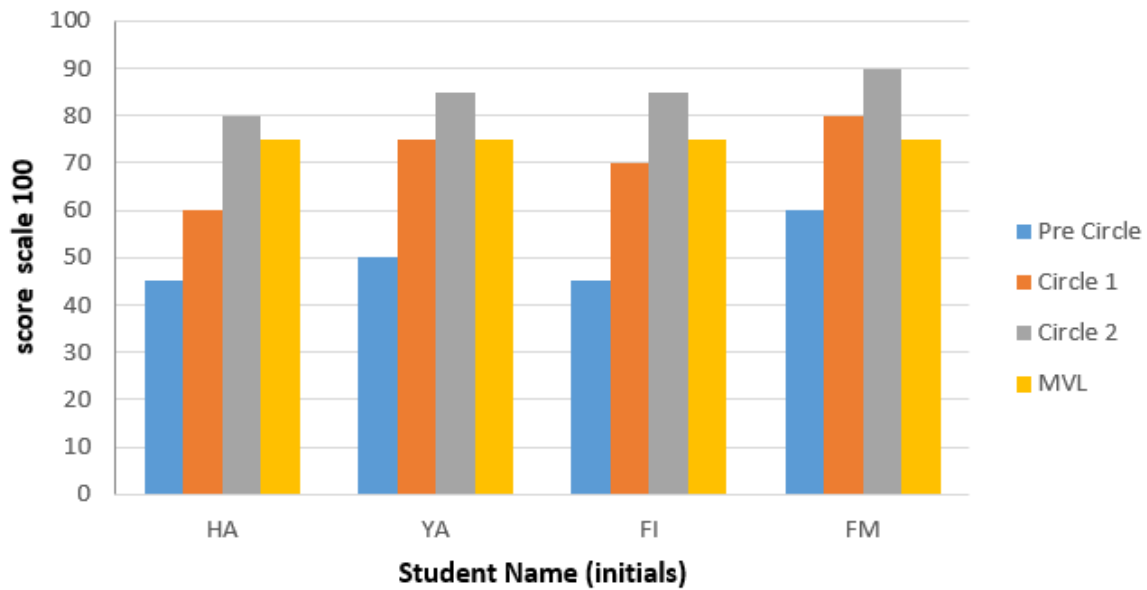
Criteria	Pre Cycle	Cycle 1	Cycle 2
Total score	11	16	24
Average Score	1.38	2.00	3.0
Category	Not enough	Enough	Well

The results of the fourth-grade student learning test in learning to count with a scale of 10-100 are in **Table 5**. **Table 5** describes the data on the assessment of student learning outcomes with indicators of 20 items expected to be able to describe student learning outcomes. **Table 5** shows the development of student learning outcomes where students have not been able to reach the minimum assessment limit (MVL) 75 in pre-cycle, but in cycle 1 two students were able to reach the minimum assessment limit (MVL) of 75 and it was very encouraging in cycle 2 all students could reach the minimum assessment limit of 75 and even pass it.

Similarly, **Figure 3** shows the development of student learning test results during the research from pre-cycle to cycle 2, each of the four students showed significant progress in learning outcomes. From the data, it can be concluded that in general the learning outcomes seen from these two cycles are an increase in children's numeracy skills. This is evident from the results of the comparison between before and after repair. The success of this improvement can be seen from the learning outcomes of cycle 1 and cycle 2, if the percentage is based on the minimum criteria for completeness in the pre-cycle, from 0% no one achieves it, in cycle 1, which is 50% (2 students achieve) it increases to 100%. (4 students achieved) in cycle 2, thus there appears to be a significant increase.

**Table 5.** Student learning outcomes.

No	Subject	Pre Cycle Score	Cycle Score 1	2 cycle score	MVL
1	HA	45	60	80	75
2	YA	50	75	85	75
3	FI	45	70	85	75
4	FM	60	80	90	75



**Figure 3.** Student learning outcomes diagram.

### 3.4. Analysis of the Result of Research Activities

Looking at the results of this classroom action research, it can be said that the guessing game method is good to apply in learning, especially in developing the ability to add up to 30. Learning through the guessing game method has many benefits, including helping develop counting skills in Student With Intellectual Disabilities. Students are happier and more motivated to learn so that the expected learning goals will be achieved more quickly. The method of guessing numbers, throwing the dice is a game that is very popular with children in Indonesia, besides being fun and challenging, it also trains calmness, coordination, accuracy, and others, but it is also necessary to minimize the negative values generated. The ability to count in mentally retarded children being studied is around the sum of two numbers with a total between 10 and a maximum of 30. Of course, the numeracy skills of Student With Intellectual Disabilities cannot be expected to be the same as children in general. Based on the results of classical individual and group learning as well as the achievement of established indicators, it can be said that this research only solves a small number of arithmetic problems, there are still many problems that have not been completely resolved, for this class action research needs to be followed up with further research. other.

## 4. CONCLUSION

Classroom action research on number guessing games in numeracy learning, namely: the addition of 2 numbers 6. to 30 in grade IV students with Student With Intellectual Disabilities at Special School of Putra Pasundan 1, from the data, we collected a very satisfactory percentage of success from 4 students who all can reach the minimum assessment limit, in addition to The number guessing game in learning also increases the behavior of students to participate more actively, be more motivated, have a sense of togetherness and foster self-confidence.



## 5. ACKNOWLEDGMENT

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## 6. AUTHOR'S NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism. I behavior or the process of occurrence of an activity that can be observed both in actual situations and artificial situations.

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