



## ***Improving the Ability to Write Natural Number Symbols (1-9) Through the Finger Numbers Media Board for Down Syndrome Students***

**Gustia Sepriani Putri<sup>1</sup>, Damri<sup>2</sup>, Mega Iswari<sup>3</sup>, Grahita Kusumastuti<sup>4</sup>,  
Antoni Tsaputra<sup>5</sup>**

<sup>1</sup>(Department Pendidikan Luar Biasa , Universitas Negeri Padang, Indonesia).

<sup>2</sup>(Department Pendidikan Luar Biasa , Universitas Negeri Padang, Indonesia).

<sup>3</sup>(Department Pendidikan Luar Biasa , Universitas Negeri Padang, Indonesia).

<sup>4</sup>(Department Pendidikan Luar Biasa , Universitas Negeri Padang, Indonesia).

<sup>5</sup>(Department Pendidikan Luar Biasa , Universitas Negeri Padang, Indonesia).

E-mail : <sup>1</sup>[gustiasepriani@gmail.com](mailto:gustiasepriani@gmail.com) , <sup>2</sup>[damrirjm@fip.unp.ac.id](mailto:damrirjm@fip.unp.ac.id),

**Receive: 17/12/2023**

**Accepted: 15/01/2024**

**Published: 01/03/2024**

### **Abstrak**

Latar Belakang dari pelaksanaan penelitian ini karena ditemukan seorang peserta didik *down syndrome* di kelas I SLB N 1 Alahan Panjang yang belum mampu menulis lambang bilangan asli (1-9) dalam pembelajaran matematika fase A. Tujuan penelitian ini untuk membuktikan penggunaan media *board finger numbers* dalam meningkatkan kemampuan menuliskan lambang bilangan asli (1-9) bagi peserta didik *down syndrome* kelas I di SLB N 1 Alahan Panjang. Metode penelitian yang digunakan pada penelitian ini adalah metode eksperimen dengan pendekatan subjek tunggal atau *Single Subjek Research* (SSR). Penelitian ini menggunakan desain A-B yang terdiri dari dua kondisi yaitu *baseline* (A) dan intervensi (B). Penggunaan desain A-B disesuaikan dengan tujuan yang hanya melihat peningkatan kemampuan peserta didik saat menggunakan media *board finger numbers*, Hasil penelitian menunjukkan bahwa kemampuan menulis lambang bilangan asli (1-9) peserta didik pada kondisi *baseline* (A) di dapatkan persentase 59,25%, 59,25%, 59,25%, 59,25%, 59,25%. Pada intervensi (B) 66,67%, 81,49%, 81,49%, 81,49%, 88,89%, 88,89%, 88,89%, 88,89%, 88,89%, 92,60%. Berdasarkan data tersebut kemampuan menulis lambang bilangan asli (1-9) peserta didik meningkat.

**Kata kunci** : Lambang Bilangan Asli, *Board Finger Numbers*, *Down Syndrome*

### **Abstract**

The background to the implementation of this research was because it was found that a student with Down syndrome in class I SLB N 1 Alahan Panjang was unable to write natural number symbols (1-9) in phase A mathematics learning. The aim of this research was to prove the use of the finger numbers board media in improve the ability to write natural number symbols (1-9) for class I Down syndrome students at SLB N 1 Alahan Panjang. The research method used in this research is an experimental method with a single subject approach or *Single Subject Research* (SSR). This study used an A-B design consisting of two conditions, namely *baseline* (A) and intervention (B). The use of the A-B design was adapted to the aim of only seeing an increase in students' abilities when using the finger numbers board media. The results of the research showed that the ability to write natural number symbols (1-9) of students in the baseline condition (A) was obtained at a percentage of 59.25%, 59.25%, 59.25%, 59.25%, 59.25%. In intervention (B) 66.67%, 81.49%, 81.49%, 81.49%, 88.89%, 88.89%, 88.89%, 88.89%, 88.89%, 92.60%. Based on this data, students' ability to write natural number symbols (1-9) increases.

**Keywords**: Natural Number Symbols, *Board Finger Numbers*, *Down Syndrome*

## Introduction

Children with Special Needs or ABK are students who have their own characteristics or are different from normal children of their age. These differences can be seen in physical, emotional and mental conditions which are below or above the average for normal children of their age (Damri, 2019). Based on Law Number 20 of 2003 concerning the education system article 5 paragraphs 1 and 2, it can be seen that children with special needs also have the right to obtain education. This includes Down Syndrome students.

Down Syndrome is caused by abnormalities in the chromosome arrangement, generally, each human chromosome consists of a pair with a total chromosome arrangement of 23 pairs, so there are 46 chromosomes in total. However, children with Down syndrome have 3 pairs of chromosomes on chromosome 21, which is known as trisomy. Down Syndrome involves mentally challenged children with similar physical abnormalities and facial features. (Fajri & Kasiyati, 2023)

Most children with Down syndrome have intellectual function (IQ) in the moderately-disabled range, with scores ranging from 35-50. This causes children to experience difficulties in aspects of intellectual function, and other aspects such as the cognitive aspect of children with Down syndrome are not yet able to write, read and count (Nuryadi, 2019). However, the focus of this research is on delayed children with Down syndrome who cannot yet write natural number symbols.

Down syndrome children need special services in learning mathematics because Down syndrome children have difficulty understanding abstract concepts, whereas Down syndrome children are still at the level of concrete thinking. So, it makes it difficult for children to understand mathematics learning using abstract concepts, for example, recognizing the concept of numbers, counting numbers, and writing numbers.

Mathematics learning carried out by teachers for children with Down syndrome in delivering learning material, teachers should use media that is concrete, easy to understand, use simple examples, use language that is easy to understand, and learning media, this is in line with the role of the teacher according to ( Damri et al., 2023) which states that during learning the teacher plays the role of facilitator and manager so that effective learning depends on the quality of the teacher.

Mathematics learning in each phase has five elements per general achievement, one of which is numbers. In elementary schools, the first phase that is implemented is phase A, phase A consists of grades 1 and 2, in this phase mathematics learning consists of various kinds of learning material that must be achieved by students, one of which is the number element where students are expected to at the end of phase A can write natural number symbols.

Natural numbers are the number one and other numbers which are multiples of one, namely (one, two, three and so on). Natural numbers are usually symbolized by N (Triyono, 2023). Natural numbers can also be interpreted as all positive numbers except 0 (zero) (ISO, 2015)

The ability to write real number symbols is needed by students to move on to the next phase, where, writing natural number symbols is a requirement for students to be able to move on to phase B, with the ability to write real number symbols students can move on to the next mathematics learning material such as number operations original.

Based on a preliminary study conducted at SLB N 1 Alahan Panjang in class I which was in phase A, it was found that a student with the initials SS, female, when observing SS appeared to have difficulty writing natural number symbols compared to her classmates. , this is also confirmed by the results of the homeroom teacher's interview which stated that SS had problems in learning mathematics, especially in writing natural number symbols (1-9) while for other material SS was already capable, after

conducting the interview the author also carried out the assessment three times regarding SS's ability to recognize natural number symbols (1-9) from the two aspects assessed, in the writing aspect SS scored below the KKM.

The solution given to this problem is to use media that suits SS's learning style, where previously, when teaching, the homeroom teacher used the copying method for material on writing natural number symbols. Related to this, learning media is a tool for conveying or describing learning opinions (Ardisal & Damri, 2013).

The learning media used in this problem is the finger numbers board media.

Board Finger Numbers is classified as smart board media, board media is a tool made to resemble the shape of a board which functions to convey messages and to stimulate students' thoughts and interests to achieve learning goals, the types of board media are: bulletin boards, whiteboards, magnetic boards, flannel boards and so on (Kamaladini et al., 2021).

Board Finger number board is board media that has a pattern so that it is easier for teachers and students to use, and its shape is not too big so it doesn't take up space. This media is suitable for children who have a kinesthetic learning style in improving their ability to write natural numbers (1-9).

This research was conducted to determine the use of finger numbers board media in improving the ability to write natural number symbols (1-9) for class I Down syndrome students at SLB N 1 Alahan Panjang.

## Method

### 1. Type of Research

This research uses a quantitative approach with a type of experimental research in the form of single subject research (SSR), experimental research is carried out for measurements between variables carried out before and after the research (Pradana, 2021). In this research,

researchers used an A-B design. The A-B design is the basic design in Single Subject Research research, in this design the researcher collects data about the subject in two conditions or phases (Indra, 2021), with the number of meetings in phase A being five times and phase B being ten times.

### 2. Time and Place of Research

This research was conducted at school, namely, SLB N 1 Alahan Panjang. The activity of writing natural number symbols (1-9) is carried out in the IC classroom at the end of learning hours, namely at 13.00-14.00 WIB. and at SS's house, the place and time settings in this study were adjusted to SS's conditions.

### 3. Research Subjects

In this study, the research subject that will be examined is one child with down syndrome who is female, at school at SLB N 1 Alahan Panjang who is in phase A with the initials SS. SS has been in the lower class since 2017.

### 4. Research Procedures

Things that need to be considered in this research are:

1. Explain the target behavior (behavior) so that accurate measurements can be made. The target behavior in this research is the ability to write natural number symbols (1-9).
2. Carry out measurements and collect data on baseline conditions (A) continuously with a minimum of 3 to 5 or until the trend and level of data becomes stable.
3. After the baseline data (A) shows stable results, then intervene with the learning media board finger numbers.
4. Next, carry out measurements and collect data at the intervention stage (B) over a certain time period until the data becomes stable.

**5. Data Collection Techniques**

The data collection technique used is:

- a. Observation techniques (observation) to observe changes in abilities in children.
- b. Documentation  
To get results from implementing interventions.
- c. Action Test  
To determine the child's abilities with the changes in actions that have been achieved.

**6. Data Analysis Techniques**

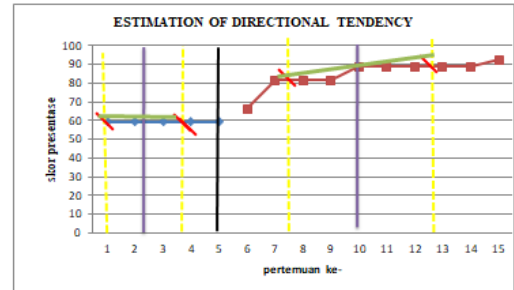
The data that has been obtained is then analyzed further. The data analysis technique is carried out using analysis within conditions and analysis between conditions which are analyzed from the visual graphic results for each condition, in the form of baseline conditions (A1), intervention (B),

**Results and Discussion**

The process of obtaining data related to the ability to write natural number symbols (1-9) was obtained through a written test which contained 9 questions whose percentages were calculated, then analyzed using graphic visual analysis techniques. The data in this study were collected through two stages of conditions, namely the first stage, condition A (baseline), condition A was carried out five times and the same score was obtained, namely 59.25% and the second condition was condition B (intervention), condition B was carried out ten meetings with scores of 66.67%, 81.49%, 81.49%, 81.49%, 88.89%, 88.89%, 88.89%, 88.89% , and 92.60%.

The data that has been obtained will be calculated for analysis in each condition, and will be presented in graphical form. The analysis is carried out through two conditions, namely analysis within

conditions and analysis between conditions. Analysis within conditions is carried out through 6 steps, so that the results obtained are as depicted in the graph and table below:



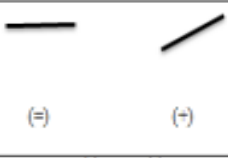
- Keterangan :**
- Data baseline(A) : —————
  - Data intervensi(B) : —————
  - Perubahan kondisi : —————
  - Estimasi kecenderungan arah : —————
  - Split Middle : —————
  - Mid Date (2a) : - - - - -
  - Mid Rate (2b) : —————

Table 1. Recapitulation of analysis in conditions

Kondisi	Baseline (A)	Intervensi (B)
Panjang kondisi	5	10
Estimasi kecenderungan arah	(=)	(+)
Kecenderungan stabilitas	Stabil 100%	Stabil 80%
Jejak data	(=)	(+)
Level stabilitas dan rentang stabilitas	Stabil 59,25%-59,25%	Stabil 92,69%-66,67%
Level perubahan	59,25%-59,25% 0 (=)	92,69%-66,67% 25,95 (+)

Next, an analysis calculation is carried out between conditions A-B, this is done to determine the overlap of the data, after going through the calculation process the results are obtained as in the table below.

Table 2. Recapitulation of Analysis Between Conditions

Kondisi	B/A
Number of variables changed	1
Changes in directional trends and their effects	
Changes in stability tendencie	Stable to stable
Level of change	66,67 - 59,25 7,42
Overlap percentage	0

Based on the results of data analysis, overall using the finger numbers media board shows an increase in the ability to write natural number symbols (1-9) for class I Down syndrome students at SLB N 1 Alahan Panjang. The increase in the ability to write natural number symbols (1-9) for Down syndrome students was influenced by providing intervention or treatment in the form of finger number board media during the research.

### Conclusion

The ability to write natural number symbols (1-9) using the finger number board media for Down syndrome students has increased. It can be said that using the finger numbers board media can improve the ability to write natural number symbols (1-9), this is obtained based on the visual graph analysis process and the research data analysis process.

### Reference

Ardisal, & Damri. (2013). Pelaksanaan Pembelajaran Siswa Berkebutuhan Khusus Di Smk Negeri 4 Padang. *Pedagogi: Jurnal Ilmu Pendidikan*, 13(1), 105.  
 Damri. (2019). *Panduan pembelajaran inklusi di sekolah menengah pertama* (p.

183).

Damri, Indra, R., Tsaputra, A., Ediyanto, E., & Jatningsiwi, T. G. (2023). Leadership evaluation and effective learning in an inclusive high school in Padang, Indonesia. *Cogent Education*, 10(2). 7  
 Indra, P. R. C. (2021). Single Subject Research (teori dan implementasinya: suatu pengantar). In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).  
 ISO. (2015). INTERNATIONAL STANDARD iTeh STANDARD iTeh STANDARD PREVIEW. *International Organization for Standardization*, 10406-1:20, 3-6.  
 Kamaladini, K., Gani, A. A., & Sari, N. (2021). Pengembangan Media Papan Edukasi Pintar Dalam Meningkatkan Motivasi Belajar Siswa Sekolah Dasar. *Seminar Nasional ...*, 1(September), 93-100.  
 Nuryadi, D. P. (2019). *Teknik Modeling Sebagai Upaya Akselerasi Kemampuan Menulis Pada Anak Down Syndrome di SDN Kidul Dalem I*. 37-56.  
 Pradana, S. (2021). *metode penelitian kuantitatif*. pascal books.  
 Triyono, R. I. O. (2023). *SURAH AL-BAQARAH UNIVERSITAS ISLAM NEGERI*.