



Effectiveness of Counting Box Learning Media to Improve the Ability to Sum Numbers 1-10 for Children with Cerebral Palsy

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Abstrak

Penelitian ini bermaksud untuk meningkatkan kemampuan penjumlahan bilangan 1-10 bagi anak *cerebral palsy* di SD IT Permata Kita Padang dengan menggunakan media Pembelajaran *Counting Box*. Media Pembelajaran *Counting Box* berfungsi sebagai alat peraga pembelajaran yang dapat dilihat serta mempermudah peserta didik dalam berhitung. Penelitian ini menggunakan pendekatan kuantitatif dengan metode eksperimen yaitu *Single Subject Research* (SSR) dan Desain A1-B-A2, Serta data dianalisis menggunakan visual grafik dengan cara memasukkan data dalam grafik yang kemudian dianalisis berdasarkan kondisi A1-B-A2. Hasil penelitian menggunakan media Pembelajaran *Counting Box* dapat meningkatkan kemampuan penjumlahan bilangan 1-10 bagi anak *cerebral palsy* di SD IT Permata Kita Padang.

Kata Kunci: *Media Pembelajaran Counting Box, Penjumlahan Bilangan, Cerebral Palsy*

Abstract

This research aims to improve the ability to add numbers 1-10 for cerebral palsy children at SD IT Permata Kita Padang by used Counting Box Learning media. Learning Media Counting Box serves as a learning prop that can be seen and makes it easier for students to count. This research uses a quantitative approach with experimental methods, namely Single Subject Research (SSR) and A1-B-A2 Design, and the data is analyzed using visual graphs by entering data in graphs which are then analyzed based on conditions A1-B-A2 The results of research used Counting Box Learning media can improve the ability to add numbers 1-10 for cerebral palsy children at SD IT Permata Kita Padang.

Keywords: *Learning Media Counting Box, Number Addition, Cerebral Palsy*

Introduction

Cerebral palsy is damage to the brain that can affect the work of the brain and nerve networks so that it can cause inattention to learning, inhibit body movements, and also inhibit their thinking ability (Nurhastuti et al. 2019). The barriers of cerebral palsy children are very influential on their intelligence level because they are in the central nervous system. Disorders of the central nervous system will have great repercussions on a person, because the brain is the core of human daily activities. (Jusriani, 2022). Of these limitations will cause reduced academic ability, students will have difficulty in following school learning, one of which is mathematics learning. One of the materials in learning mathematics is to perform number addition calculation operations.

Number addition is basically an activity that involves two numbers to be added with a symbol (+). Examples of summation itself such as $2+3=5$, $4+2=6$. $8+1=9$. According to (Marfuah 2019) number addition aims to improve the ability of students themselves to better understand and understand how to add numbers correctly. If the child has not been able to add up the number of mathematics subjects, the material given cannot go up to the next level so that students can lag behind their peers and classmates or students are just stuck repeating the same material until students understand the addition material. (Alvyenti dan Mahdi 2023).

Based on a preliminary study conducted at SD IT Permata Kita Padang, a grade 2 elementary school student with Cerebral Palsy barriers was found. Cerebral Palsy barriers in these students occur in the right hand so that it is difficult to carry out activities with the right hand. The problem found in these students is that he has not been able to add up the numbers 1-10. The ability of students can only add numbers

with a maximum result of 3 while on numbers greater than 3 children have difficulties, he also has difficulty recognizing addition symbols in the problem and he has difficulty distinguishing 6 and 9 randomly.

Based on this information, researchers are interested in intervening using the Counting Box Learning media as a concrete medium in increasing the ability to add numbers 1-10. Counting Box Learning Media is a concrete media that has various features / elements such as toy eggs, shelves for counting, sticking questions, sticking answers.

The advantages of the Counting Box Learning media certainly have an interesting shape from the form of a box, opened the box there are several interesting features as an enhancer of students' learning will.

Method

The research approach used in this study is a quantitative approach with experimental methods. Research with experimental methods aims to determine whether or not there is an increase in ability by providing interventions carried out. The experimental method in this study is Single Subject Research (SSR). Single Subject Research (SSR) is an experimental research aimed at seeing and evaluating the treatment given or intervention that has been implemented. The intervention provided is measured how much influence in percentage form (Indra 2021). In this study, the intervention was measured by using counting box learning media to assist in aspects of mathematics learning, namely the addition of numbers 1-10. The research design used is reversal design with type A-B-A.

According to (Marlina 2021) the A-B-A design in Single Subject Research (SSR) research is divided into 3 conditions,

namely: first, in the first stage of Baseline (A1), which is the initial condition without being given treatment or intervention at all, the second is (B) namely giving treatment or providing Counting Box learning media in the learning process, and the third Baseline (A2), namely the condition of students without being given treatment or without providing intervention with Counting Box learning media. The subject in this study was a female student with the initials N grade II who attended SD IT Permata Kita Padang experiencing difficulties in adding numbers 1-10.

Result and Discussion

The research was carried out or carried out with 14 meetings. In baseline conditions (A1) 3 meetings were held, (B) intervention was carried out 7 times, and (A2) baseline (A2) carried out 4 meetings. Baseline data (A1) was obtained from observations of students with Cerebral Palsy barriers in the ability to add numbers 1-10. In the Baseline condition which was carried out 3 times with a percentage of 27%, 27%, 27% with 3 aspects of assessment mentioning, answering, writing. As for Intervention (B), it was carried out 7 times with a percentage of 60%, 75%, 87%, 87%, 90%, 90%, 90%. In the Baseline (A2) condition, 4 meetings were held with a percentage of 87%, 90%, 90% and 90%.

Based on data obtained from these 3 conditions which are baseline A1, Intervention B, and baseline A2, researchers ended the observation because the data was stable at the last 3 meetings in baseline (A2).

Here is a summary of the percentages in 3 Conditions A1-B-A2:

Graph 1 Summation Ability of Numbers 1-10 for Children with Cerebral Palsy

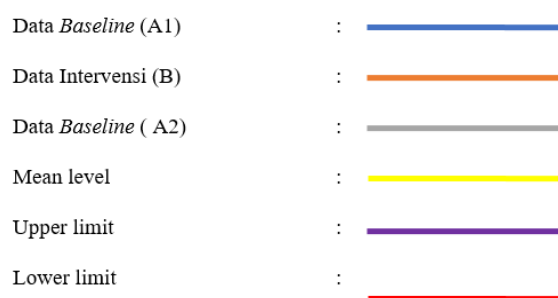
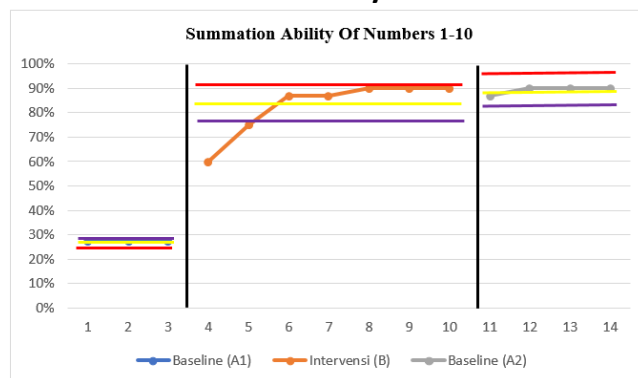
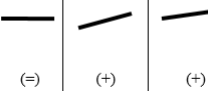


Table.1 Summary of in conditions analysis

NO	Condition	A1	B	A2
1	Length of conditions	3	7	4
2	Estimated Directional Tendency	(=)	(+)	(+)
3	Stability Tendency	Stable (100%)	Unstable (71%)	Stable (100%)
4	Data Footprint Trends	(=)	(+)	(+)
5	Stability level and range	Variabel 27%-27%	Variabel 90%-60%	Variabel 90%-87%
6	Level of change	27-27 =0 (=)	90-60=30 (+)	90-87=3 (=)

namely students are able to use fingers and hands when inserting toy eggs or sticking questions and answers.

Table 2. Summary of interconditions analysis

No	condition	A1/B/A2
1	Number of changed variables	1
2	Changes in Direction Trends and Their Effects	
3	Changes in Stability Trends	Stable – Unstable- Stable
4	Level of change	
	a. Level changes to condition B/A1	60%-27%= 33%
	a. b. level change in condition B/A2	90%-60%= 30%
5	Overlap percentage	
	a. Percentage overlap on A1 with B	0%
	a. b. Percentage overlap on A2 with B	71%

The urgency of the research is found in students with Cerebral Palsy Grade 2 obstacles at SD IT Permata Kita Padang who have difficulty in adding numbers 1-10, difficulty distinguishing 6 and 9 randomly and difficulty in recognizing symbols about addition.

Learning media for children with cerebral palsy barriers is based on the principles of learning media, namely general principles and special principles in cerebral palsy children. The general principle is that this media is appropriate because it emphasizes demonstration, children's abilities, exercise, repetition and reinforcement while the specific principle in question is the multisensory principle and the principle of individualization (Nani et al. 2018).

Learning Media Counting Box on the principle of individualization, which is given education in accordance with the abilities of students, here students with cerebral palsy barriers are given the media because they still do not understand and maximize the addition of numbers 1-10. Learning Media Counting Box on the multisensory principle,

The Counting Box Learning Media in this study is used as a concrete prop in helping counting activities (Rozi 2022). The use of counting box learning media for students causes a change in the ability to add numbers 1-10. The change shows an increase in the percentage on the graph of each condition, especially the intervention, as well as an increase in the ability to add numbers 1-10 after the intervention compared to before the intervention.

Based on the discussion above, the results of the Counting Box Learning media research data are effective in increasing the ability to add numbers 1-10 in grade II Cerebral Palsy children at SD IT Permata Kita Padang. Pembahasan ditulis melekat dengan data yang dibahas. Pembahasan diusahakan tidak terpisah dengan data yang dibahas.

Conclusion

Based on this presentation, the use of counting box learning media can increase the ability to add numbers 1-10 for cerebral palsy children in grade 2 of SD IT Permata Kita Padang. To optimize learning, it is necessary to be consistent both for students and teachers during the learning process.

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