



Improving the Ability of Subtraction Count Operations Using Abacus Media for Children with Mild Mental Disability (Single Subject Research in SLB Perwari Padang)

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Abstract

The background of this research was the discovery of a class VII mild mental retardation child at SLB Perwari Padang who had difficulty learning arithmetic subtraction operations. Based on this, a formulation of the research problem was put forward, namely "Can abacus media improve the ability of subtraction arithmetic operations for class VII mild mentally retarded children at SLB Perwari Padang?". The purpose of this study was to examine the use of abacus media on the abilities of mild mentally retarded children and to improve the ability of subtraction operations for mildly mentally retarded children. The method used in this study is an experimental method with a single subject research (SSR) approach. This study used an ABA design consisting of three conditions, namely baseline (A1), intervention, and baseline (A2). Data in this study were collected through testing and documentation techniques. The data obtained were analyzed through analysis techniques within conditions and analysis between conditions. The results showed that the subtraction arithmetic operations of the subjects in the baseline condition (A1) obtained percentages of 40%, 50%, 50%, 50%. In the intervention condition (B) the subject's abilities obtained percentages of 70%, 80%, 80%, 90%, 90%, 90%, 90%. As well as the subtraction arithmetic operation ability of the subject in baseline conditions (A2) obtained percentages of 90%, 90%, 90%, 90%. It concluded that abacus media can improve the ability of subtraction arithmetic operations for children with mild mental retardation.

Keywords: Subtraction Count Operations, Abacus Media, Mild Mental Disability.

Introduction

Children with special needs are children who have special characteristics that can be seen in terms of physical, intelligence, social and emotional and cause them to have limitations and obstacles to obtain optimal development. So that special education services are needed that are in accordance with the obstacles they have, including mentally retarded children.

Children with mental retardation are part of the classification of children with special needs which are characterized by limitations in cognitive function and adaptive behavior, where symptoms occur at the age of under 18 years (Rochyadi, 2012). In cognitive function, mentally

retarded children have an intelligence level below the average or equivalent to two standard deviations, namely less than 70. As a result, this affects communication, social and academic tasks so that special education is needed (Ghazi, 2017). One of the academic tasks that becomes difficult for them is learning mathematics.

Mathematics is a basic science that underlies numeracy skills, the goal is to make it easier for children to live their daily lives. Because mathematics is also a part of human life, such as when we trade, shop, count days, take measurements, and so on. One of the many mathematical materials is material for subtraction operations.

Based on a preliminary study conducted in the form of observation by the author at SLB Perwari Padang, it was found that a class VII mild mentally retarded child had unable to understand subtraction arithmetic operations. And then, the researcher conducted interviews with the class teacher, it was found that the teacher also stated that during mathematics learning using blackboards and ice cream sticks which children always carry, but children are less interested in the learning process. The teacher also had not found media that could help children solve the problems faced by children. As a result, children's learning outcomes in subtraction arithmetic operations material are relatively low.

To strengthen the results of the observations and interviews above, the researcher gave a written test in the form of 20 subtraction questions, to determine the subtraction arithmetic operations ability of the subject. Of the twenty questions provided, the child can only answer 7 questions correctly, so that the result of the subject's ability is 35%.

Based on the description and conditions above, this encourages the writer to find solutions or alternatives that can help mild mentally retarded children to be able to carry out subtraction operations correctly. The choice to handle it the author uses a concrete learning media that can attract children's attention. The boredom that students sometimes feel is overcome by using media which acts as a stimulus to motivate students to learn (Damri, 2021).

Mathematics learning media that can be used to help mild mentally retarded children in subtraction arithmetic operations is abacus media. As a three-dimensional media, adekak media is made of wooden planks and there are poles on it. The akadekak media is a simple arithmetic tool that has a function to explain the place value of a number and is used in addition and subtraction arithmetic operations (Sulistiyo, 2018).

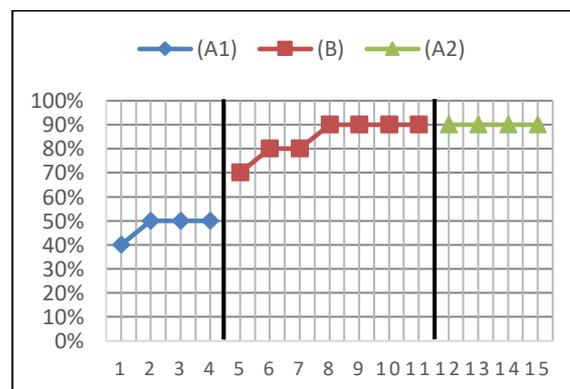
Method

This research is a quantitative type research with an experimental method using a single subject research (SSR) approach. According to Sunanto et al. (2005) single subject research is research that focuses on individual data that acts as a research sample. Single subject research aims to measure the effect of giving treatment or treatment to subjects that are carried out repeatedly for a certain period of time.

In this single subject study using the A-B-A design. Where to take measurements in baseline conditions (A_1), then given treatment or intervention (B), then measure again in the second baseline condition (A_2) after being given treatment or intervention or conditions where interventions are withdrawn (Marlina, 2021). In each condition, the research will be carried out in two stages, namely the preparation phase and the implementation phase. The data obtained will be analyzed and presented in graphs. there are two types of data analysis, namely analysis in conditions and analysis between conditions.

Result and Discussion

The data collected during the study for each condition can be seen in the following graph.



Graph 1. Recapitulation of data on conditions A1-B-A2

The graph above explains that the research was conducted in 15 meetings. Where the baseline condition (A_1) was carried out 4 times with the acquisition of

results of 40%, 50%, 50%, 50% on the subject's subtraction arithmetic operations. In the intervention condition (B) it was carried out for 7 meetings with the acquisition of results of 70%, 80%, 80%, 90%, 90%, 90%, 90% on the subject's subtraction arithmetic operations. And the last condition is baseline (A2), the results obtained were 90%, 90%, 90%, 90% on the subtraction arithmetic operation ability of the subject which was carried out for 4 meetings.

Based on the results of data analysis in the three conditions, it can be seen that the ability to count subtraction operations has increased. This means that the abacus media can improve the ability of subtraction arithmetic operations for children with mild mental retardation.

Conclusion

The use of abacus media in learning arithmetic subtraction operations for children with mild mental retardation has an influence on their abilities. Overall the child obtained a result of 90% which was higher before using the abacus media which was 35%. It can be concluded that abacus

media can improve the ability of subtraction arithmetic operations for children with mild mental retardation.

Bibliography

- Damri, D. (2021). *Pengembangan Kurikulum Dan Pembelajaran Di Sekolah Yang Beragam Peserta Didik* (1st Ed.). Rajawali Pers.
- Ghazi, R. H. (2017). *Video Tutorial Untuk Meningkatkan Keterampilan Memasang Kampas Rem Bagi Anaktunagrahita Ringan. I*, 7–12. <https://doi.org/10.24036/jpkk.V1i1.29>
- Marlina, M. (2021). *Single Subject Research Penelitian Subjek Tunggal* (Cetakan-1). PT Raja Grafindo Persada.
- Rochyadi, E. (2012). Pengantar Pendidikan Luar Biasa. *File.Upi.Edu*, 1–54.
- Sunanto, J., Takeuchi, K., & Nakata, H. (2005). Pengantar Penelitian Dengan Subyek Tunggal. *Criced University Of Tsukuba*, 1–150. <https://doi.org/10.5607/En.2016.25.133>