

Effect of Demonstration Method With Manipulative Media for Increase Ability Counting of Mentally Disabled Students at SLB C Summersari Bandung

Sinta Yuni Susilawati*, Ranti Novianti, Jefri Sholehini, Umi Safiul Ummah
Corresponding Author: sinta.yuni.fip@um.ac.id
Universitas Negeri Malang, Indonesia

ABSTRACT

This study focuses on improving the abilities of mathematics learning outcomes (summation) in mildly mentally disabled children through methods and media in learning. The purpose of this study was to describe the effect of the demonstration method with manipulative media in increasing the ability to learn mathematics (summation) in grade IV mildly mentally disabled children at SLB C Summersari Bandung. The subjects in this study were two mildly mentally disabled children in class IV SDLB. This study uses a quantitative approach with a single-subject research (SSR) experimental method with an ABA design. The results of this study indicate an increase in the ability of mathematics learning outcomes (summation) in mild mentally disabled children after the implementation of the demonstration method with manipulative media in learning. Based on the results of research and data processing, it was concluded that learning using the demonstration method with manipulative media increased the ability to learn mathematics (summation) in mildly mentally disabled children. It is suggested to the school (teachers) to use the demonstration method with manipulative media in learning activities to improve the ability to learn mathematics (summation) in mildly mentally disabled children.

Keywords: Effect of Demonstration Method, Manipulative Media, Mathematics Learning Ability, Mentally Disabled Student.

INTRODUCTION

Intellectual dysfunction indicates retardation in functioning, which includes below-average intellectual functioning associated with limitations in two or more adaptive skills such as communication, self-care, social skills, health and safety, academic functioning, leisure, etc. The situation arises before the age of 18, according to the AAMR (Suharmini, 2007). Children with intellectual disabilities experience mental development that is far above average; this results in children experiencing difficulties in the academic field (Efendi, 2018). Some problems with academic functioning include limitations in thinking, low memory capacity, and deep abstract thinking.

One of the limitations is that they have a child with a barrier to functioning intellectually and run into some difficulties in academic fields, especially mathematics. One of the difficulties experienced by children with barriers to functioning intellectually in mathematics is numeracy skills. Khadijah dkk., (2024) stated that the ability to calculate is "as the ability to order numbers without involving them with concrete objects". Counting is a skill that is really needed in everyday life. Counting is a part of mathematics that can develop children's cognitive abilities. The ability to count can help children develop thinking skills from an early age. Apart from that, it is important to teach numeracy skills from an

early age to stimulate cognitive development regarding mathematics in solving problems in the surrounding environment.(Widayati dkk., 2021). Mathematics learning is very systematic, where the initial abilities mastered by students influence subsequent abilities because numeracy skills are needed to improve the foundation of mathematics so that you are better prepared to take part in higher-level mathematics (Hastuti WD, 2020).

Children with impaired intellectual functioning face many problems in arithmetic. Children who experience difficulty functioning in their intellectual capacity experience difficulty in understanding mathematical concepts and applying them in everyday life. Numeracy is a subject that is generally taught in the form of abstract concepts, so it is necessary to create a conducive learning atmosphere (Pang and Ling, 2012 in Wibowo H, 2021). Mathematics is an abstract science (Dico dkk., 2023). Mentally disabled children can understand numeracy if teachers can apply correct learning using methods that can help them learn. The method that needs to be applied in developing children's numeracy skills from an early age is by playing fun, creative games so as to create a pleasant learning atmosphere and build children's interest in taking numeracy lessons (Pang and Ling, 2012 in Wibowo H, 2021). One learning method that may be used is the demonstration method. Roestiyah (2008:83) suggests that "Method demonstration is method teaching where an instructor or the teacher team shows a process so that the whole child can see, observe (hearing and maybe groping) and feel the process shown by the teacher ". Through the demonstration method, children's attention can be focused more on the lesson being taught; errors that occur when the lesson is being taught can be overcome through observation and concrete examples so that the impression the child receives is deeper and lasts longer in his soul. Another benefit is that it can provide strong motivation for children to study harder. So, with this demonstration, children can participate actively, gain direct experience, and can develop their abilities.

Remember, power abstraction in children with obstacles is intellectually easy. To make it easier for the teacher to provide a concrete description of the material conveyed by the teacher, it is necessary to grow the ability to represent mathematical students because " Ability representation mathematical is one necessary process standards grown and owned students " (Pratiwi & Surya, 2021). In developing students' mathematical representation abilities, teachers can use media in the learning process. Using the right media will provide optimal results for students in understanding the media material being studied. One media that is suitable for conveying material about the symmetry of flat shapes is manipulative media. Manipulative media is a learning aid that is used specifically to explain mathematical concepts and steps. Students can manipulate this tool (flipping, cutting, shifting, moving, drawing, adding, sorting/classifying) (Acytri B, 2019). The advantage of manipulative media is that it can help illustrate abstract concepts to students so that students can understand the symmetry learning plan that is being taught. It is stated that in the learning process, children should be given the opportunity to play with innovative concrete objects or media to sharpen students' brains and help them understand mathematical concepts (Murni dkk., 2023). Manipulation of material or media will essentially help teachers in teaching, and students easily accept a mathematical concept topic or, better yet, students through fun exercises or learning together (Murni et al., 2023).

Lesh, Post dan Behr dalam Agustian (2021) divide representation used in education mathematics into five types, including : Representation of real-world objects, Representation concrete, Representation symbol arithmetic, Representation Language orally or verbally, Representation picture or graph. Type the intended representation in the

study. This is an arithmetic symbol representation. Embodiment results This can disclosed through object physique form tool display that is use of manipulative media of numeric symbols. A number of results relevant to research with study This is Research conducted by Eneliana (Acytri B, 2019) results show that there is a positive influence results Study student with exists enhancement results Study after taught with manipulative media in class V SDN 36 South Pontianak. Research conducted by Wendi (Acytri B, 2019) The results shows that learning using manipulative media has a significant influence on the results of Study Mathematics students. Clear seen that the use of manipulative media is capable of influencing the results of Study students. This is caused by multidirectional interactions that occur so that students are not impressed passively in class. The two results about the use of manipulative media above show the influence of the medium on the results of Study students who use manipulative media. That second study also shows that students who use manipulative media are better or taller than those using image media.

METHOD

The study uses a quantitative approach with a method experiment. Tawney and Gas, 1984 (in Yuwono I, 2020) Single Subject Research (SSR) is a study of experiments carried out to know how much influence from something the treatment given to the subject a manner over and over again in time. Study This was conducted at SLB C Summersari Bandung. The subject study consists of 2 children, mentally disabled light class IV SDLB, who experienced difficulty in learning mathematics sum number simple. The data collection technique used is a test. The test is a series of questions or exercises or other tools used to measure skills, knowledge, intelligence, abilities or individual talent or group (Arikunto S, 2010). Reason for using technique tests: Technique tests are more effective in measuring performance. Study students and thought processes low until with medium (memory, understanding and application). To collect data, something like a tool or a so-called instrument is needed. Makbul (2021) states, "Research instruments are tools or facilities used by researchers in collecting data; data is easier to process, more accurate and systematic so as to produce quality research". Instruments used that is instrument observation. In the study. This researcher focuses on observing the ability to Study mathematics (sum) children before and after the use of method demonstration with manipulative media.

RESULT

The data obtained is an illustration of the improvement in the subject's mathematics learning outcomes (addition) in each session observed using research instruments. For subject AA results recapitulation measurement from phase baseline 1 (A1) for four sessions, phase intervention (B) 8 sessions and phase baseline 2 (A2) for four sessions. For subject AA, the measurement recapitulation of results from baseline phase 1 (A1) was four sessions, intervention phase (B) was eight sessions, and baseline phase 2 (A2) was four sessions. In the first session, AA got a score of 40%; in the second session, he got a score of 40%. In the third session, he still got a percentage score of 40%, and in the fourth session, he still got the same score with a percentage of 40%, so from the mathematical ability data (summation), AA does not increase.

After the baseline phase 1 (A1), the intervention phase (B) was carried out for eight sessions by obtaining a percentage score of 50% in the first session; the second session

increased with a percentage score of 70%, the third session increased to 80%, in the fourth to sixth sessions AA obtained the same score, namely with a percentage of 90% and the seventh and eighth sessions of AA obtained the same score, namely with a percentage of 100%.

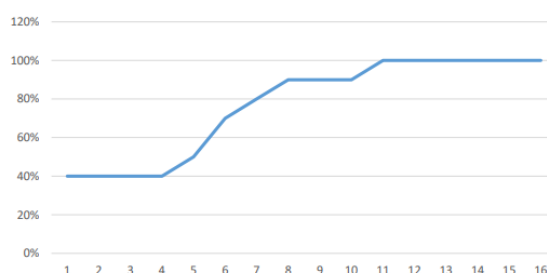


Figure 1. Graph of Baseline 1 (A1) Measurement Recapitulation Results, Intervention (B) and Baseline 2 (A2) for Subject AA

Figure 1 shows that the initial ability at baseline 1 (A1) shows that the subject's mathematical ability (addition) is low after being given intervention (B) in the form of learning using the manipulative media forging method; the subject's mathematical ability (addition) has increased. At baseline stage 2 (A2), the graph continues to increase again and is stable. Meanwhile, for FR subjects, recapitulation of performance measurement results from baseline stage 1 (A1) is four sessions, intervention stage (B) is eight sessions, and baseline stage 2 (A2) is four sessions. In baseline phase 1 (A1) with data acquisition results in sessions 1 to 4, namely 40% in the intervention phase (B) with data acquisition results in sessions 5 to session 12, namely 40%, 60%, 60%, 80%, 90%, 90%, 100%, 100% and at baseline stage 2 (A2) with data acquisition results in sessions 13 to session 16, namely 90%, 100%, 100%, 100%.

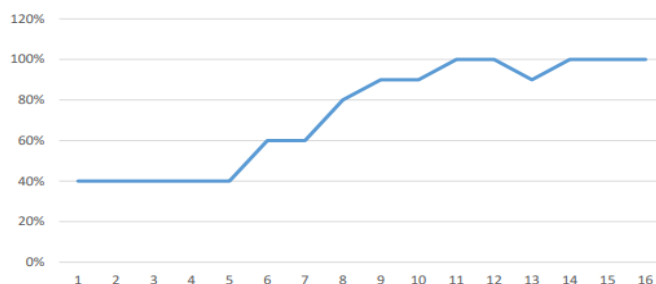


Figure 2. Graph of Baseline 1 (A1) Measurement Recapitulation Results, Intervention (B) and Baseline 2 (A2) for Subject FR

Figure 2 shows that the baseline ability in baseline 1 (A1) shows that the subject's mathematical ability (addition) is low after being given intervention (B) in the form of learning using the exposure method with manipulative media, the subject's experience of mathematical ability (addition) increases and at baseline stage 2 (A2) the graph shows a slight decrease in the first session. Still, then until the final session, it increases again and is stable.

DISCUSSION

1. Discussion subject AA

In accordance with the results, study subject AA shows a level of developed learning ability. Study math (addition) with learning-use method demonstration using manipulative media. Ability Study accomplished mathematics about operation number sum simple is the result to 20. In phase baseline 1 (A1), for four session measurements, phase intervention (B) learning math (sum) using method demonstration with manipulative media as much eight-time session measurement and phase baseline 2 (A2) after giving intervention four session measurements. In phase baseline 1 (A1), the percentage highest nor lowest reached subject is 40% in sessions 1,2,3 And 4. In phase intervention (B), the percentage reached by the subject was 100% in session 11,12, and the lowest percentage achieved by the subject was 50% in session 5, on session 6,7,8,9 And 10 experienced enhancement that is 70%, 80%, 90%, 90%, 90%. In phase baseline 2 (A2), the percentage of the highest nor lowest reached subject was 100% in sessions 13,14,15 and 16. This percentage of ability child stable.

In Figure 1, the average score level development ability in studying mathematics (addition) on the AA subject increased. There is an increase in the mean level of ability. Study math (addition) can seen between baseline 1 (A1) 4% to intervention (B) 8. 3% and baseline 2 (A2) presence the increase in the mean level is 10%. So, the chart shows the enhancement of my ability to study mathematics (addition) in the subject of AA. Study This proves that in learning, there is an influence method, and the media used is a method demonstration with manipulative media to increase the ability to Study mathematics (addition) in children who are mentally disabled light. Research results aligned with a study previously done by Eneliana (Acytri B, 2019) that showed that there is a positive influence on students with enhancement results. The study was after being taught with manipulative media in class V SDN 36 South Pontianak. It is clearly seen that the use of manipulative media is capable of influencing the results of study students. This is caused by multidirectional interactions that occur so that students are not impressed passively in class.

2. Discussion subject FR

Based on the results, research on the subject of FR shows a level of development ability. Study math (addition) with learning and use method demonstration with manipulative media. Ability Study accomplished mathematics about operation number sum simple is the result to 20. In phase baseline 1 (A1), for four session measurements, phase intervention (B) learning math (sum) using method demonstration with manipulative media as much eight-time session measurement and phase baseline 2 (A2) after giving intervention four session measurements.

In phase baseline 1 (A1), the percentage highest nor lowest reached subject is 40% in sessions 1,2,3 And 4. In phase intervention (B), the presentation highest reached subject was 100% at sessions 11 and 12, the percentage lowest reached subject is 40% in session 5, and in sessions 6,7,8,9 and 10, similar experience increase i.e. 60%, 60%, 80%, 90%, 90%. In phase, baseline 2 (A2), the percentage highest reached subject was 100% in sessions 14, 15, and 16, and the presentation lowest reached subject was 90% in session 13.

In Figure 2, the average score level development ability in studying mathematics (addition) on the FR subject increased. There is an increase in the mean level of ability. Study math (addition) can seen between baseline 1 (A1) 4% to intervention (B) 6.5% and between baseline 2 (A2) presence mean level increase 9.7%. So, the chart shows the enhancement of the ability to study mathematics (sum) on the subject FR. Study This proves that in learning, there are influence methods and media used, which is a method demonstration of manipulative media in increasing ability. Study mathematics (addition) in children mentally disabled light. Research results are in line with the study previously carried out by Wendi (Acytri B, 2019). The results show that learning using manipulative media has a significant influence on the results of Study Mathematics students.

CONCLUSION

Based on the results, research and data analysis that has been done obtained a description of the influence method demonstration with media manipulation in increasing ability. Study math (addition) in both subjects for children who are mentally disabled in light class IV at SLB C Summersari Bandung. From the results of research and data analysis that has been done, it is known that the ability to begin math (addition) in both subjects of children mentally disabled in an aspect operation number sum is simple before and after the intervention experience improvement. Increasing percentage study ability math (summation) on both subject children mentally disabled light the obtained after doing deep data analysis condition as well as data between condition. Enhancement can seen with an increase in the mean level in phase baseline one by 4%, in this vase baseline 1 (A1). Child Not yet given intervention, then on phase intervention (B), the mean level increases to 8. 3% and after given intervention from learning use method demonstration with using mean level manipulative media on phase baseline 2 (A2) increase to 10% for subject A A. For FR subject increased mean level in the phase baseline 1 (A1) by 4% before given intervention, in phase intervention (B) mean level increased to 6. 5% and in phase baseline 2 (A2) after given the mean level intervention increased become 9.7%.

There is improvement in the ability to Study math (addition), which only applies to second-subject children mentally disabled light in the study, and yet can be generalizable to the same population. With existing enhancement ability studies on both subjects, children mentally disabled were lightly researched, and then the objective study was not reached. Based on the results of research and conclusions that have been disclosed, then there are a number of necessary things researchers convey as suggestions/ input, as follows: (1) For teachers, results study this, specifically Which related to increased ability Study mathematics operation number sum simple for kids mentally disabled light can become alternative in activity implementation effective learning with use method demonstration with manipulative media. (2) Share Researcher Next, results study This expectation can become a reference for the researcher next on the subject that has the same characteristics to use to expand empirical proof.

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