

The Effect of Rainbow Egg Rack Media on the Addition and Subtraction Calculation Skills of Students with Mild Intellectual Disabilities at SLB Rela Bhakti 1 Gamping.

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ABSTRACT

This study aims to investigate the impact of the Rainbow Egg Rack LOL media on the addition and subtraction computation skills of students with mild intellectual disabilities in Grade VI at SLB Rela Bhakti 1 Gamping. Conducted at SLB Rela Bhakti 1 Gamping in July 2024 during the 2024/2025 academic year, this research employs a quantitative approach with a pre-experimental design, specifically a one-group pretest-posttest framework. The sampling technique utilized involves the entire population of Grade VI students at SLB Rela Bhakti 1 Gamping. Data collection was executed through pre-tests, treatment, and post-tests. The analysis of the data utilized non-parametric statistical methods, employing descriptive analysis. To test the hypothesis, the Wilcoxon signed-rank test was conducted at a significance level of $\alpha=0.05$. The decision-making process in hypothesis testing revealed an Asymp. Sig (2-tailed) value of 0.043, which is less than the significance level of 0.05. Consequently, the alternative hypothesis (H_1) is accepted. This indicates a significant difference between the pre-test and post-test scores regarding addition and subtraction operations. Therefore, it can be concluded that the Rainbow Egg Rack LOL media positively influences the computation skills of addition and subtraction among students with mild intellectual disabilities in Grade VI at SLB Rela Bhakti 1 Gamping.

Keywords: Mild Intellectual Disabilities, Addition and Subtraction Operations, Rainbow Egg Rack LOL Media

INTRODUCTION

Children with special needs require tailored educational services that address their unique learning barriers and individual material needs. Special education is essential for optimizing the potential of these children, who develop and grow differently compared to their peers. Therefore, individualized learning strategies must consider the psychological and physical conditions of each child to provide appropriate special education services that enhance their capabilities (Nur Azizah, 2023).

Mild intellectual disability refers to individuals who exhibit significantly below-average intellectual functioning (IQ) due to developmental, mental, emotional, social, and physical challenges, rendering them unable to adapt to their environment. These children possess mental limitations and require education and training to adjust to their surroundings. They necessitate additional support from their parents and community to foster independence. Consequently, students with mild intellectual disabilities need specialized services tailored to their capabilities (Hisny et al., 2023). Mild intellectual disability is characterized as a developmental disorder where individuals do not exhibit notable physical differences,

although their physical development may be slightly slower than that of their average peers. Typically, they do not show significant physical disparities (Damastuti, 2020).

Observational assessments conducted by the author in a Grade VI classroom at SLB Rela Bhakti 1 Gamping revealed that several students with mild intellectual disabilities faced challenges in mathematics, particularly in addition and subtraction. While these students could count using their fingers, they often appeared confused during calculations. In this class, five students struggled with addition and subtraction, requiring considerable time to complete just six problems. Instruction in this classroom relied heavily on lecture methods, with the teacher not employing any media to facilitate students' understanding of mathematical concepts. As a result, students frequently became confused and bored, particularly in mathematics, where they exhibited a lack of concentration. These students could count from 1 to 20 and perform addition and subtraction operations within the range of 1 to 10.

The mathematical abilities of children are influenced by both internal and external factors. Internal factors encompass aspects intrinsic to the child, such as motivation, maturity, individual learning styles, and the cognitive load experienced during the learning process. In contrast, external factors pertain to elements outside the child, such as the learning environment itself, which can negatively impact a child's learning capacity. Examples of detrimental external factors include monotonous and unengaging instruction, poorly designed learning materials, and teaching practices that fail to accommodate student diversity (Audina, 2021).

Interviews conducted with teachers at SLB Rela Bhakti 1 Gamping revealed that they seldom utilize media during instruction, often feeling perplexed about which tools to incorporate into mathematics teaching. As a result, mathematics is perceived as an abstract subject, making it challenging to identify suitable media. One effective educational tool that can be utilized is the Rainbow Egg Rack LOL. Neoloka (2016) emphasizes that media serve as a critical educational resource, significantly influencing the selection of teaching methods. The effectiveness of teaching is determined by the instructor's ability to utilize media effectively, rather than the sophistication of the media itself. If children are exposed solely to lecture-based instruction, their engagement diminishes, resulting in passive learning that can lead to disinterest. The Rainbow Egg Rack LOL is a readily accessible and cost-effective visual aid adorned with vibrant colors that can capture students' interest (Nasution, 2020).

METHOD

The research design employed in this study is experimental, utilizing a quantitative approach to test the established hypotheses. The experimental design model serves as a methodological framework where investigations are conducted through experimentation. Specifically, the study adopts a Pre-Experimental Design, characterized as "The one-group, pretest-posttest design," which entails administering a pretest prior to the intervention and a posttest subsequent to the intervention.

This experimental method is implemented to ascertain the effects of specific independent variables on dependent variables (Sugiyono, 2019). By comparing the conditions before and after the intervention, this design aims to yield more accurate results regarding the efficacy of the treatment. Through this systematic approach, the study seeks to provide a robust analysis of the impact of the intervention on the targeted outcomes.

RESULT

The initial assessment was conducted prior to the instruction utilizing the Rainbow Egg Rack LOL media, wherein students were presented with addition and subtraction problems. The data from this preliminary test were collected from students as they independently completed the tasks without any assistance from the teacher. This activity aimed to evaluate the baseline mathematical competencies of the students, providing insights into their initial skill levels before the intervention.

Table 1. Pre-test score

No	Name	Pre-test score
1.	AL	53
2.	RY	37
3.	NT	50
4.	FR	33
5.	RA	60

This activity was conducted to assess the extent to which the research sample comprehended the instructional material provided. Additionally, the researcher aimed to determine whether there were any changes in the scores obtained by the research sample following the intervention. The results from the post-test data are presented in the table below:

Table 2. Post-test score

No	Name	Post-test score
1.	AL	100
2.	RY	83
3.	NT	100
4.	FR	93
5.	RA	93

Based on the data presented above from the pre-test and post-test results, conclusions can be drawn regarding the mean, maximum value, minimum value, and standard deviation, all calculated using SPSS version 26. The results of the descriptive statistical analysis for the pre-test and post-test data are displayed in the following table:

Table 3. Descriptive Statistics

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Pre-test	5	27	33	60	51.20	11.077
Post-test	5	17	83	100	93.80	6.979
Valid N (listwise)	5					

Based on the table above, it can be concluded that the pre-test data, derived from five research samples, yielded a mean score of 52, with a maximum value of 60, a minimum value of 53, and a standard deviation of 11.07. In contrast, the post-test data revealed a mean score of 93, with a maximum value of 100, a minimum value of 83, and a standard deviation of 6.979.

The hypothesis testing in this study employed the Wilcoxon matched-pairs signed-rank test. This test was conducted to determine whether there is a statistically significant difference in the mean scores of the sample group before and after the intervention using the Rainbow Egg Rack LOL media. The analysis compares the pre-test and post-test scores to assess whether there is an improvement within the sample group.

Table 4. Wilcoxon Test Result

Wilcoxon Signed Ranks Test				
		N	Mean Rank	Sum of Ranks
Post Test - Pre Test	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	5 ^b	3.00	15.00
	Ties	0 ^c		
	Total	5		

Test Statistics ^a	
	Post Test - Pre Test
Z	-2.023 ^b
Asymp. Sig. (2-tailed)	.043

The table above indicates that the value of Asymp. Sig. (2-tailed) is 0.043, which is less than 0.05. H_0 is rejected and H_1 is accepted.

CONCLUSION

Based on the findings presented above, it can be concluded that the Rainbow Egg Rack LOL media has a significant effect on the addition and subtraction computation skills of students with mild intellectual disabilities at SLB Rela Bhakti 1 Gamping.

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