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Improving Two-Syllable Reading Skills Through Smartboard Media for Children with Mild Intellectual Disabilities

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Abstract

This study aims to improve the ability to read two syllables using smartboard media. The researcher used a quantitative research type with an experimental approach in the form of single subject research (SSR) with an AB design. The technique in collecting data was a test. The data were analyzed by graphic visual analysis. The subjects of this study were children with mild intellectual disabilities in grade IV of SLB N 1 Sungai Pagu. The results of the study showed that in the baseline condition (A) which was carried out three times, a stable percentage of 10% was obtained. In the Intervention condition (B) which was carried out nine times, a stable percentage of 90% was obtained. Based on the results of the study, it can be concluded that smartboard media can improve the ability to read two syllables for children with mild intellectual disabilities.

INTRODUCTION

Children with intellectual disabilities are defined as children whose intelligence is far below average and is characterized by limited intelligence and incompetence in social conditions and requires special education (Juita & Budi, 2022). The goals of education for children with intellectual disabilities are determined by the students' needs and what they want to achieve and develop. Reading ability is the primary foundation for mastering basic literacy skills (Rahman & Ardisal, 2019). For children with mild intellectual disabilities, reading is not only a cognitive process for recognizing sound and word symbols, but also a means of improving communication skills, understanding instructions, and adapting to daily life (Intan & Kasiyati 2019). However, limitations in intellectual capacity mean that the process of teaching children with intellectual disabilities to read requires a more specific, structured approach tailored to their developmental characteristics (Budi et al., 2023).

One of the important stages in early reading learning is mastery of syllables, especially two-syllable words with a KV-KVK pattern. Children with mild intellectual disabilities often have difficulty recognizing syllable patterns phonologically and visually, so learning media that can stimulate more than one sense (multisensory) and can be used manipulatively to improve understanding of phonetic concepts are needed (Pasaribu & Budi, 2022). Various

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previous studies have demonstrated the effectiveness of concrete media, such as letter cards (Rahayu & Kartika, 2018), letter blocks (Handayani & Suyatno, 2020), and magnetic adhesives (Mulyani & Priyono, 2021) in improving the reading skills of children with special needs. However, most of the media used are still two-dimensional, lack sensory variation, and have not been specifically designed for learning to read two syllables (Sari & Setia, 2023).

Based on a preliminary study at SLB N 1 Sungai Pagu on a fourth-grade SDLB student with the initials M who experienced problems in reading two-syllable words with the pattern KV-KVK. The researcher conducted observations in one class where there were 3 children with mild intellectual disabilities, in Indonesian language learning. When conducting identification in the fourth grade, the researcher found a child with the initials M who had difficulty reading words with the pattern KV-KVK. This was because the teacher only explained and told stories then asked the child to copy the explanation discussed on the board and work on the illustrated LKPD written on the LKPD. So the child was less active during learning and easily bored. Therefore, one of the media that can be used to improve the ability to read two syllables in children with mild intellectual disabilities is smartboard media. According to Maghfi & Suyadi (2020), smartboard media is an effective and good learning media that can convey messages to the target to increase children's creativity and attention in the learning process.

As an innovative effort to overcome these limitations, this study developed and implemented Smartboard media, a concrete object as a learning aid for reading two syllables for children with mild intellectual disabilities. This media is made of plywood and white aluminum pens, with colorful magnetic letters made of soft premium foam material. The design of this media aims to provide a more interesting, safe, and enjoyable learning experience, while integrating visual, tactile, and kinesthetic aspects in a single learning process.

Thus, this study aims to analyze the effectiveness of using Smartboard media made of concrete objects in improving the ability to read two syllables in children with mild intellectual disabilities, as well as strengthening the contribution of studies in developing applicable and adaptive learning media for students with special needs.

METHOD

This research uses a quantitative approach with an experimental method in the form of Single Subject Research (SSR) or single subject research (Marlina, 2021). The design used is AB design, which consists of three phases: baseline phase of initial ability (A), intervention

phase (B). The purpose of the design is to determine the improvement of the intervention given to the change in behavior of the subject individually. The independent variable in this study is the smartboard media, while the dependent variable is the ability to read two patterned syllables (KV-KVK). The subject in this study is a student with mild intellectual disabilities with the initials M, female, aged 13 years, and is a fourth grade student at SLB N 1 Sungai Pagu. The subject was chosen because she showed significant difficulties in reading two patterned syllables (KV-KVK).

The data collection technique was carried out through observation, tests and documentation of data collection instruments in the form of worksheets containing 10 questions in the ability to read two syllables which were carried out on October 7, 2025. The research subjects were students with mild intellectual disabilities in grade IV in improving their ability to read two patterned syllables (KV-KVK). The data obtained were analyzed using graphic visual analysis techniques, which included analysis in conditions and then the results were presented in graphic form to facilitate the interpretation of changes in the subject's abilities during and after the intervention.

FINDINGS AND DISCUSSION

The study was conducted over 12 sessions, demonstrating the improvement of smartboard media using concrete media in Indonesian language learning. The 12 sessions were divided into two sessions: the baseline session (A) consisted of 3 sessions, and the intervention session (B) consisted of 9 sessions. The following is the comparative data from session AB:

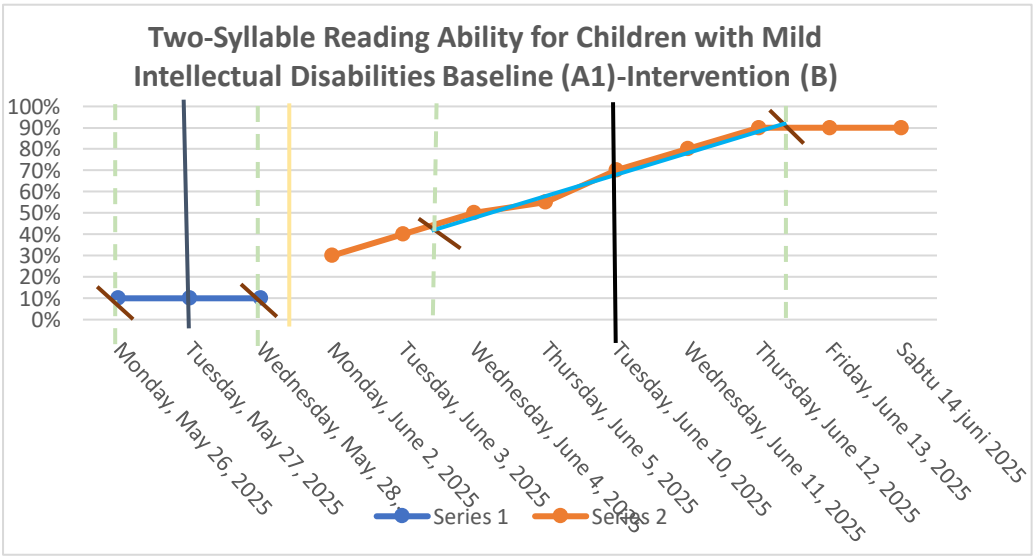
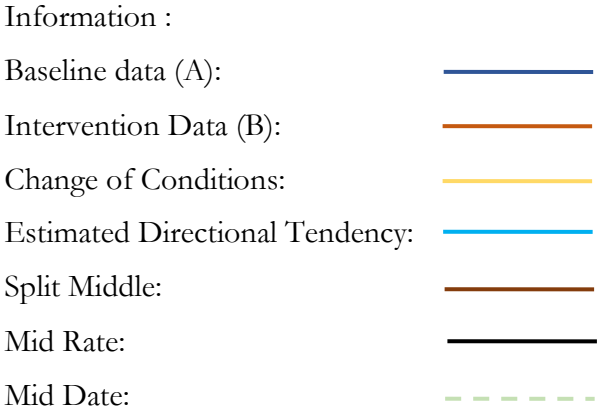


Figure 1. Analysis of the results of the ability to read two syllables



Based on graph 1, it can be seen that in the baseline condition (A), observations were made 3 times, with a percentage score of 10%, 10%, 10% from the first day to the third day. From the baseline condition A, the mean level was 10%, the upper limit was 13%, the lower limit was 7%, and the stability percentage was 100%. Furthermore, in the intervention condition (B), observations were made 9 times, with a percentage score of 30%, 40%, 50%, 55%, 70%, 80%, 90%, 90%, from the fourth day to the twelfth day. From the intervention condition (B), the mean level was 66, the upper limit was 73, and the lower limit was 59.3. And the stability percentage was 33%. The estimated trend in this condition at the last meeting on the 10th-12th day increased. This indicates that the implementation of the intervention has a positive influence on the variables that are the focus of the study. The following is a recapitulation of the data stability tendencies in AB conditions which are presented in the table below:

Tendency towards stability	**Results**	
Stability range	1.5	13
Mean level	10	66
Upper limit	13	73
Lower limit	7	59.3
Stability percentage	100%	33%

Table 1.Recapitulation of stability tendencies 1

Based on the table above, it can be seen that the percentage of stability at baseline (A) is 100%, the percentage of stability at intervention (B) is 33%, but in the last three meetings, 10-12 meetings, it increased drastically. The following are the results of the data analysis under the conditions obtained:

No	Condition	A	B
1	Condition Length	3	9
2	Estimation of trend direction	(=)	(+) 
3	Tendency towards stability	100% (Stable)	33% (Unstable)
4	Data trace trends	(=)	(+) 
5	Stability levels and ranges	Variables 10%-10%	Variables 30%-90%
6	Level of change	10-10 = 0	90 – 30 = 60

Table 2. Summary of data analysis results in conditions

The table above shows the summary results of the data analysis within a condition, including the condition length, estimated trend direction, data trace trend, stability level and range, and level of change. The summary table for the analysis between conditions is as follows:

No	**Condition**	**A**	**B**
1	Number of variables changed	1	
2	Changes in directional tendencies and their effects	**(=)**	**(+)** 

3	Changes in direction and stability	Stable	No Stable
4	Level of change		
	a. Condition B/A	30%-10% = 20%	
5	*Overlap percentage*		
	a. Condition A/B	0%	

Table 3 Summary of data analysis results between conditions

The table above shows the recapitulation of the results of data analysis between conditions which includes the number of variables changed, changes in direction and effect trends, changes in direction and effect trends, changes in stability trends, levels of change and percentage of overlap.

Based on the data above, it can be seen that the percentage overlap from A to B is 0%. The smaller the percentage overlap, the better the intervention's impact on the target behavior. Therefore, it can be concluded that smartboards can improve reading skills in individuals with mild intellectual disabilities.

CONCLUSION

Based on the above explanation, children with mild intellectual disabilities require a specialized, structured, and multisensory learning approach, particularly in mastering basic skills such as reading. The ability to read two-syllable words with a CV-CVC pattern is a crucial stage in early reading learning and often presents a barrier for children with intellectual disabilities. Therefore, innovative learning media that are concrete, engaging, and can be used manipulatively are needed.

Smartboard media is a concrete object, designed from plywood with magnetic letters made of foam, present as an innovative alternative that combines visual, tactile, and kinesthetic elements. This media is believed to increase student engagement in the learning process, facilitate gradual phonetic understanding, and provide a more enjoyable and adaptive learning experience. Thus, the development and use of Smartboard media has significant potential in supporting two-syllable reading skills for children with mild

intellectual disabilities, as well as enriching studies on learning media that are applicable and responsive to the needs of students with special needs.

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