

# The Effect of Scramble Method Using Magnetic Board Media on Braille Reading Ability Among Second Grade Students with Visual Impairment

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# The Effect of Scramble Method Using Magnetic Board Media on Braille Reading Ability Among Second Grade Students with Visual Impairment

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**Abstract:** Second grade students with visual impairment have a lack of awareness on braille writing. Moreover, students with visual impairment not only have a trouble in reading braille but also have a trouble in writing braille. In reading braille, it is difficult for them because of their awareness to written braille is still lacking. The purpose of this study was to examine the effect of the scramble method with a magnet board media on the ability to read braille for second grade students with visual impairment at SLB-A (Special School for Students with Visual Impairment) YPAB Tegalsari Surabaya. The research method used was a quantitative approach type of pre-experimental research. Research design "the one group pre-test post-test design" was applied to obtain data on the ability to read braille before and after treatment, with the subject comprised of 7 second grade students with visual impairment at SLB-A YPAB Tegalsari Surabaya Indonesia. Data were analyzed quantitatively based on pre-test and post-test results. Findings show that participants obtained 47.14 on pre-test and obtained 78.5 on. Thus, it can be concluded that there is a significant influence of the scramble method with a magnet board media on the ability to read braille for students with visual impairment.

**Keywords:** Braille reading, magnetic board media, scramble method, students with visual impairment

## 1. Introduction

Students with special needs have difficulty during learning process because of physical, emotional, mental, social, and / or abnormalities with special intelligence and talents. Because the characteristics and obstacles possessed by students with special needs, they require special services personalized to their abilities and potential, for example for students with visual impairment.

According to Hallahan and Kaufman (2010: 34), students with visual impairment are students who have impaired vision or vision accuracy is less than 6/60 after being corrected or no longer has vision. Students with visual impairments have limitations in the sense of sight, the learning process emphasizes the other senses, specifically the sense of smell, the sense of taste, the sense of touch and the sense of hearing. Blindness can inhibit many aspects such as motor, cognitive, social, emotional and communication. One of the most important aspects is the cognitive aspect of student's language skills. Barriers in the language aspects experienced by students greatly affect the ability to read in students with visual impairment. People with visual impairment use the media to meet their reading needs. Students who are visually impaired need braille and large capital letters to help their needs.

Braille is a writing system using dots that can be read with the fingers by people with visual impairment. Braille consists of 6 points, with the formation of 2 columns 3 rows, the 6 points from number 1,2,3 down in the left column and 4,5,6 down in the right column. Braille is a kind of touch writing system used by people with visual impairment used their thumbs Widjaya (2012: 66). In reading braille, people with visual impairment rely on the skills of the fingertips in using the initial or basic skills that must be possessed by students with visual impairment from an early age, because braille is

very important in their lives and braille is an important medium for the people with visual impairment in the transformation of knowledge for the people with visual impairment.

The ability to read braille greatly affects the learning process for students with visual impairment. Reading skills are the basis for mastering various fields of study in schools. Explained by (Lener in Abdurahman, 2003: 200) If students do not have the ability to read, there will be many obstacles and difficulties experienced in learning various fields of study.

According to Dalman (2013: 86) in basic grade elementary school (SD), children must be trained to be able to read fluently before they enter further reading and comprehension. It was clarified by (Mercer in Abdurahman, 2003: 200) that the ability to read not only allows one to improve work skills and mastery of various academic fields, but also allows participation in social life, culture, politics, and meet emotional needs.

Preparing children to learn to read is a long process. To increase someone's interest in reading, they need ongoing guidance and practice. Being able to make students successful is a major factor in a teacher's duty. To achieve student success, teachers must be able to provide various information and innovative methods in teaching and learning. With a fun method and media assistance can foster student interest in learning and students are able to compose their own sentences of words that have been introduced then students can read them effortlessly

The results obtained from the preliminary study in SLB-A (Special School for Students with Visual Impairment) YPAB Tegalsari Surabaya, Indonesia on November 16th, 2017. Second grade students with visual impairment have difficulty reading, they have tactile that is less sensitive, so braille written with riglet and stylus makes them confused and get some difficulties. to distinguish between one letter with another. The distance between sentences with each other also make confuses students with visual impairment, so they feel lazy in learning to read. Students with visual impairment will easily get bored when instructed to read the material which has been given.

In the problems faced by students at SLB-A YPAB Tegalsari Surabaya, the researcher focused on the methods and supporting media used for the reading process of braille second grade. Teachers are required to provide various innovations in learning because to increase students's learning interest. With appropriate methods, supporting and innovating media, students's interest in learning will increase and their memory will be more function than before.

One of the proper methods to use is the scramble method using magnetic board media. According to Shoimin (2014: 166) scramble is a learning method that invites students to find answers and solve problems accompanied by alternative answers available. This method is believed to increase student interest in learning and make students more active or feel curious about the day's learning, and allows students to learn while playing, students feel they are playing even though they are also learning while thinking and practicing the accuracy.

To make it successful in applying the scramble method steps in reading braille, it is necessary to have appropriate media supporters. Supporting the right media for the scramble method is magnetic board media. Magnetic board media is a form of media board that is coated with metal, so that the board can be affixed to objects that are magnetized to one side according to Rohani (1997: 23).

Field learning with scramble method using magnetic board makes learning more interesting. As stated in Government Regulation number 19 of 2005 concerning the national standard for education Chapter IV article 19 which reads "the learning process in the education unit is carried out interactively, imperatively, fun, challenging, motivating students to participate actively, as well as providing sufficient space for practitioners, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students.

Barriers that have students with visual impairment in reading braille must be immediately followed up by the scramble method using a magnet board that is fun, bigger and involves all students in learning, researchers are interested in applying the Scramble method with supporting magnetic board media in the teaching-learning process to improve Braille reading for students with visual impairment in the thesis entitled "The effect of the media scramble method magnetic board on the ability to read Braille in students with visual impairment of second grade at SLB-A YPAB Tegalsari Surabaya.

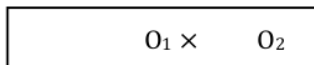
## **2. Purpose of the Study**

This study aims to determine the presence or absence of "The Effect of Scramble Method using magnetic board on Braille Reading Ability of the second grade students with visual impairment in SLB-A YPAB Tegalsari Surabaya".

### 3. Methodology

#### 3.1 Research Design

The research design used was "One-group Pretest-Posttest Design" which was an experiment that used pre-test and post-test to compare conditions before being given treatment and after given treatment (Sugiyono, 2017: 74). This study used a design through tests before being given treatment ( $O_1$ ) and after being given treatment ( $O_2$ ), so there was a comparison between  $O_1$  and  $O_2$  to determine the effectiveness of the treatment ( $x$ ). This design can be described as follows:



Information:

$O_1$  = Pre-test scores (before treatment)

$O_2$  = post-test score (after treatment)

$\times$  = treatment given

Explanation:

$O_1$  = (Initial Observation) was conducted to determine the initial ability. This test was done 1 time at the beginning before being given treatment that aimed to determine the child's initial ability to read letters and words (beginning reading). The test carried out in the pre-test is an action test that was performing an order to read syllables and words that have been given by the researcher. Subjects were given 6 treatments for 2x30 minutes. Provision of this treatment was done through the scramble method with magnetic board media.  $O_2$  = Posttest (Final Observation) was conducted to determine the ability of students with visual impairment after being given treatment for 6 meetings through the scramble method with magnetic board media. The post test was done in the same way as the pretest. Posttest was carried out once using the final observation sheet / posttest.

#### 3.2 Research Subjects

There were seven second grade students with visual impairment at SLB-A YPAB Tegalsari Surabaya, Indonesia participated in this study. Moreover, they all have difficulty in reading braille.

#### 3.3 Research Location

This research has been done in SLB-A YPAB Tegalsari Surabaya Indonesia.

### 4. Results and Discussion

#### 4.1 Research Result

##### 4.1.1 The Reading Ability of Braille Students with Visual Blindness at the Initial Test (Pre-test)

Pre-test activities are carried out in accordance with the aspects that have been determined. Students with visual impairments are asked to read syllables and words. Students are asked to read words and syllables that have been prepared by researchers in the magnetic board media. The following pre-test data on the ability to read braille for students with visual impairment of second grade in SLB-A YPAB Tegalsari Surabaya is in table 4.1.

Table 4.1

*Assessment Sheet of Student's Braille Reading (Pre-test)*

No	Subject	Score	Mark
1	AR	4	40
2	SR	5	50
3	NS	5	50
4	TG	6	60
5	FA	6	60
6	LA	4	40
7	IA	3	30
Total			330
<i>pre-test average score</i>			47,14

The pre-test results listed in table 4.1 can be concluded that the ability to read braille among second grade students with visual impairment at SLB-A YPAB Tegalsari Surabaya students still needs to be improved. So that requires methods and supporting appropriate learning media in order to improve the ability to read braille students with visual impairment.

*4.1.2 Data on the Results of Treating Braille Reading Using the Magnetic Board Scramble Method*

The treatment in this study was conducted 6 times. At each meeting, the time given is 2 x 30 minutes. In this study, teaching and learning activities carried out in a classroom consisting of 7 students with visual impairment.

*4.1.3 The Results of Reading Ability of Students with Students with visual impairment in the Final Test / Post Test*

The test given in this post-test is the same as the test given at the pre-test, which is first meeting is oral test. Post-test data on the ability to read braille among grade two students with hearing impairment at SLB-A YPAB Tegalsari Surabaya can be found in table 4.2.

Table 4.2

*Post-Test Results Data of Braille Reading Ability of B Second grade Students with Visual Impairment at SLB-A YPAB Tegalsari Surabaya*

No	Subject	Score	Mark
1	AR	7	70
2	SR	9	90
3	NS	7	70
4	TG	9	90
5	FA	10	100
6	LA	7	70
7	IA	6	60
Jumlah			550
Post-test average score			78,5

16

Based on the results of the oral post test shown in table 4.3 it can be concluded that the reading ability of Braille students with visual second grade SLB-A YPAB Tegalsari Surabaya has increased after being given treatment using a scramble method with a magnet board mediated from 47.14 to 78.5.

#### 4.1.4 Recapitulation of the results of preliminary observations / pretests and final observations/ posttests of students' reading ability in braille people with visual impairment

Data from the recapitulation of the initial test / pre-test and the final test / post-test of braille reading ability in students with visual impairment of second grade SLB-A YPAB Tegalsari Surabaya are in table 4.3

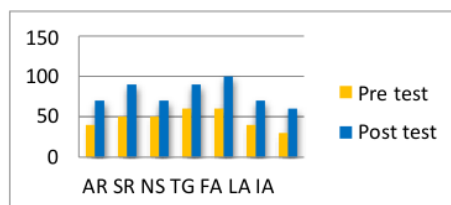
Table 4.3  
The results of the recapitulation of the pre-test and post-test data of the ability to read braille with the scramble method using a magnet board for students with visual impairment in second grade SLB-A YPAB Tegalsari

No	Name	Pre-Test (O1)	Post-Test (O2)
1	AR	40	70
2	SR	50	90
3	NS	50	70
4	TG	60	90
5	FA	60	100
6	LA	40	70
7	IA	30	60
<b>Average Score</b>		<b>47,14</b>	<b>78,5</b>

The average value of 7 students before applying the scramble method using magnetic board media was 47.14 and after applying the scramble method using magnetic board media in learning an average value of 78.5 was obtained.

Graphic 4.1

Results Before and After Using the Scramble Method using Magnet Board Media on the Ability to Read Braille Students of Second grade Visually Impaired Students at SLB-A YPAB Tegalsari Surabaya



Based on the chart above regarding the results before and after the treatment of scramble method using magnetic board media, the ability to read braille students with visual impairment in SLB-A YPAB Tegalsari Surabaya shows a difference. The ability to read braille students with visual impairment before given treatment or scramble treatment method with magnetic board obtained the lowest result 30 and the highest result 60. This shows the ability to read braille students with visual impairment is still lacking and needs to be developed especially in reading syllables and words. Therefore, the researchers provide an interesting learning, larger font size and fun for students with visual impairment to develop the ability to begin reading braille with scramble method using magnetic board media.

#### 4.1.5 Data Analysis Results

The results of the data analysis were used by researchers to answer the problem formulation and test the hypothesis that "there is an effect of the scramble method with magnetic board media on the ability to read braille for students with visual impairment in second grade" Following are the stages in data analysis:

Develop a data analysis table that is used to present the value of the results of the pre-test and the post-test results in the ability to read braille students with visual impairment and as a tool to determine T (the number of levels / lowest rank).

Table 4.4

*Wilcoxon Signed Rank Test Table Results of Braille Reading Ability among Second Grade Students with Visual Impairment at SLB-A YPAB Tegalsari Surabaya*

Subject	Pre Test (O1)	Post Test (O2)	O <sub>2</sub> -O <sub>1</sub>	Rank		
				Lowest rank	+	-
A	40	70	30	3,5	3,5	-
S	50	90	40	6,5	6,5	-
N	50	70	20	1,0	1,0	-
T	60	90	30	3,5	3,5	-
F	60	100	40	6,5	6,5	-
L	40	70	30	3,5	3,5	-
IA	30	60	30	3,5	3,5	-
Total					W =28	T =

Pre-Test and Post Test results that have been analyzed and constitute the data obtained in the study were reprocessed using data analysis techniques in order to obtain conclusions and research. Analysis of the data used in this study is the analysis of the data used in this study is the analysis of data using the Wilcoxon formula.

#### 4.1.6 Data Interpretation

The results of the data analysis above used a non-parametric test with a Wilcoxon signed rank test formula, because the data were quantitative in the form of numbers and subjects used were relatively small for less than 30 students. Shows the results of  $Z_h = 2.36$  (value (-) is not calculated because the absolute value is greater than the value of the table Z ( $Z_t$ ) with a critical value of 5% (for two-sided testing) = 1.96. So it can be concluded that the value of  $Z_h = 2.36$  is greater than the value of  $Z_t = 1.96$  with a crisis value of 5% ( $Z_h > Z_t$ ) so that  $H_0$  is rejected and  $H_a$  is accepted, this means that there is a significant influence between the scramble method with magnetic board on the ability to read braille students with visual impairment in SLB- A YPAB Tegalsari Surabaya.

#### 4.2 Discussion

Based on the results of data analysis using the Wilcoxon match pairs test formula, it is known that the working hypothesis ( $H_a$ ) is accepted and the null hypothesis ( $H_0$ ) is rejected. This shows that there is a significant influence of the use of the scramble method using a magnet board media on the ability to read braille for second grade students with visual impairment at SLB-A YPAB Tegalsari Surabaya.

The results showed an increase in the value of reading ability of braille students with visual impairment through learning activities using the scramble method using a magnet board media and the increase can be seen with the average value of the ability to read braille before the scramble method using a magnet board media is 47.14 to 78.5 after through random word play notes with the help of magnetic board media.

Scramble learning method using magnet board media prioritizes the active role of students in learning to build students' thinking processes so that students think more creative, and the media used

increases student learning interest in reading braille because it has a larger size. The first step is giving questions in accordance with the material, making answers that have been randomized, then arranging the letters in column B which are the keywords (answers) of questions in column A.

This is in line with behavioristic learning theory, according to Thorndike in learning and learning, learning is a change in behavior as a result of the interaction between stimulus and response. In other words, learning is a form of change experienced by students in terms of the ability to behave in new ways as an interaction between stimulus and response.

In this research the scramble method with magnetic board media helps students with visual impairment to obtain information in the form of braille writing because they can get information in the form of writing only with braille because of the limitations they have. The scramble method gives students interesting learning because they learn while playing and their participation in learning. As the opinion stated by (Rober B. Taylor in Huda, 2013: 303) explains that scramble is one of the learning methods that can increase concentration and speed of student thinking.

By being treated through the scramble method using magnetic board media, it is easy to remember the location of braille points, not being saturated in class learning, training their sensitivity, and full involvement of students in learning. During the learning process students with visual impairments look enthusiastic about learning that takes place by following each stage of the scramble method with the help of magnetic board media. This is seen from the questions raised by students of the students.

Based on the average value of the results of the post-test braille reading ability of students with visual impairment second grade at SLB-A YPAB Tegalsari Surabaya obtained an average value of 78.5 it is seen the difference in values obtained from the average value of the pre-test with a value of 47, 14 An increase with the achievement of the average difference between pre-test and post-test 31.36.

## 5. Conclusion

The results showed that the scramble method with magnetic board media significantly influenced the braille reading ability among students with visual impairments. This is based on the results of the study before applying the scramble method using a magnetic board obtained an average value of 47.14 and after applying the scramble method using a magnet board obtained an average value of 78.5. In addition, the results of the study also showed that  $Z_h = 2.36$  is greater than the crisis value of Z table 5% (two-sided testing), namely 1.96, meaning  $Z_h = 2.36 > Z_t = 1.96$ . Based on these results it is evident that there is an effect of the scramble method with a magnet board media on the ability to read braille among students with visual impairment in SLB-A YPAB Tegalsari Surabaya.

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PAGE 2

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PAGE 3

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PAGE 4

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PAGE 6

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PAGE 7

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