

Mind Map as a Writing Exercise Method for Deaf Learners

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ABSTRACT

This research is motivated by the problems of deaf learners in writing. Incorrect use of spelling and punctuation, lack of vocabulary mastery, and irregular sentence structures based on language rules lead to the meaning of sentences, and the purpose of writing by deaf is less understandable. The purpose of this research is to prove a significant influence on the application of *Mind Map* towards deaf learners writing skills. This research uses a quantitative approach, the type of pre-experimental one group pre-test, and post-test. Data collection techniques with tests that are pre-test, and post-test. Further results of data obtained through the test are calculated with statistical analysis. Based on the analysis result of nonparametric statistical data, can be concluded that there is a significant influence on the application of Mind Mapping against the skills of writing deaf learners. Deaf learner's writing skills are improving, on aspects of spelling accuracy (letters and punctuation), the accuracy of the words used, and the accuracy of sentence structures.

Keywords: deaf, writing, mind map

1. INTRODUCTION

Deafness has a complex impact on the life of the sufferer. Apart from hearing loss itself, another effect of hearing loss is language. It has long been recognized that language is the most important area affected by deafness [1]. When a person has a disturbance in his auditory function, the disturbance will have an impact on his language skills [2]. The language aspect has always been a major highlight of the deaf because the use of language is very important in life. Through language, a person can express his ideas, ideas, opinions, and experiences to others. Language is also a means of communication or thought transportation which can be in the form of spoken (speech) or written [3]. Poor phonological ability can prevent a person from guessing the sequence of sounds and make it difficult to identify and remember orthographic word forms [4].

Writing is a skill that is assumed to be part of literacy and is also the most complex skill among other skills. Writing skills depend on the amount of vocabulary you have, an understanding of the structure, or syntax. So it can be said that obtaining writing skills is based on language skills. Also, vocabulary knowledge affects writing ability [5]. In general, deaf students used less complex syntactic structures in writing [6] and made more errors in the use of syntactic structures than did students with normal hearing [7]. This is consistent with the results of observations made by at the special deaf

primary school in Banyuwangi, where it was found that students' writing skills were low. Deaf learners have not been able to apply punctuation marks, capital letters, and do not know how to write each object's name. Regardless of the shortcomings or obstacles that the deaf experience, they still have potential that can be developed. Developing the potential for hearing impairment is by utilizing residual hearing and optimizing visual absorption by visualizing learning patterns, it could be with pictures, photos, concrete objects, diagrams, etc. [8]. Deaf learners are visually oriented students in learning [9]. Therefore, teachers need to choose visual media to support the learning process.

By the learning characteristic of the deaf, in the learning process, you can use the *Mind Map* method. This method helps students to focus more on learning through visualization. Mind Map is the easiest way to receive information and extract information from the brain and a simple way to take notes creatively, effectively, and can map thoughts [10]. Mind Map is useful as an active and collaborative learning tool in various fields from various educational contexts [11]. With a Mind Map, students with hearing impairment can express ideas or material as creatively as possible by using simple materials such as paper or blackboard, colored pencils, and imagination. First, students write the main idea of the material in the middle of the paper which is at the same time the center, then make branches from the center with colored curves and write down the keywords or supporters of the main idea. Each

curve is added with a picture representing the keyword. Based on these problems, it is necessary to carry out further research on the influence of *Mind Maps* on the writing skills of deaf learners.

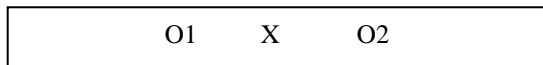
2. METHOD

This study used a quantitative research approach to the type of pre-experimental one group pre-test - post-test. The research was conducted at a special deaf primary school in Banyuwangi, Indonesia. This school was chosen because all students are deaf, thus meeting the needs of the required number of subjects. The subjects in this study were 8 grade IV students. The research process starts with preparation (research permit, and a set schedule), then conducts research and is followed by data collection, data analysis, conclusions, and suggestions. Data were collected through giving a pre-test and post-test. Besides, it is also to find more accurate results between before and given intervention.

Figure 1. Pre-test post-test design

Information:

O1 : The pre-test score aims to assess the deaf learners' initial



writing ability before being given the intervention

X : The treatment or intervention that will be given to deaf learners through the *Mind Map* method

O2: Post-test score to assess the writing ability of deaf learners after being given the intervention

The subjects in this study were class IV, deaf learners, with the following characteristics :

1. Deaf learners who are familiar with letters
2. Deaf learners who have simple vocabulary

The data analysis technique used in this study is a nonparametric statistic, and the statistical test tools used in this study were Wilcoxon Match Pairs Test, because the sample used in this study amount to 8, therefore it is assumed the data is not normal and inhomogeneous. This research instrument is adapted from "Writing Skills" by Damayanti [12]. The Wilcoxon formula The Match Pair Test is as follows :

$$Z = \frac{T - \mu T}{\sigma T}$$

Information:

- Z : The value of the Wilcoxon Match Pairs Test
- T : Small number of ranks
- X : The direct observation results are the number of signs (+)
- μT : Mean (average value)
- σT : Standard deviation
- P : The probability of obtaining a sign (+) or (-) = 0.5
- n : Number of the sample.

3. RESULTS AND DISCUSSION

Based on the results of data analysis, it shows that the success rate is 95% and the failure rate is 5%, which means that there is a significant effect of applying the Mind Map method to the writing skills of deaf students. This can be seen from the results of the writing of deaf students who have increased and become better. The aspects that are assessed in initial writing are the accuracy of spelling (letters and punctuation), the accuracy of the words used, and the accuracy of the sentence structure.

The pre-test was given to students 1 time on April 4, 2019, was carried out before being given treatment or intervention and was carried out for 45 minutes. During the pre-test, gave written tests to students. The written test was prepared by the researcher with a mapping design. During work, the researcher did not assist students in answering the questions.

The intervention was carried out in 6 meetings within 10 days. Each meeting was held for 45 minutes by applying the Mind Map method of learning. The material given is animal by type. Selected 6 animals to be used as material, including giraffes, elephants, catfish, starlings, tigers, and crocodiles. Out of the six animals, they are divided into three groups, where giraffes and elephants represent herbivores, crocodiles and tigers represent carnivores, catfish and starlings represent omnivores. Compile learning materials according to the steps to make a Mind Map [10]. Students are guided to write a description of each picture, paying attention to spelling, word usage, and sentence structure. For example, students pay attention to the picture of a tiger eating meat on a mind map sheet first, then the researcher guides the students to write down the information "tigers eat meat" in Indonesian.

Post-test was given to students 1 time on April 16, 2019, carried out after being given treatment or intervention and carried out for 45 minutes. Just like during the pre-test, in the continuation of the post-test activities the researcher gave written tests to students. The written test was prepared by the researcher with a mapping design. During work, the researcher did not assist students in answering the questions.

Table 1. Results of Pre-test nad Post-test

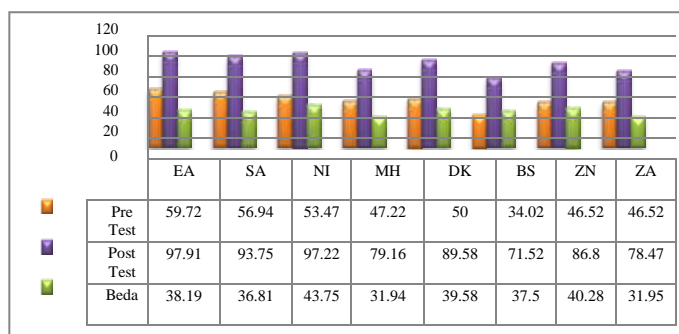
No	Name	Pre-Test (O1)	post-Test (O2)
1	EA	59,72	97,91
2	SA	56,94	93,75
3	NI	53,47	97,22
4	MH	47,22	79,16
5	DK	50	89,58
6	BS	34,02	71,52
7	ZN	46,52	86,80
8	ZA	46,52	78,47
Avarage		49,30	86,80

Based on the results of the pre-test and post-test recapitulation, it is known that BS is the student who gets the lowest score. Of the 8 students in the class, BS language proficiency is the lowest. BS has difficulty in communicating through oral and written, unclear speech, low vocabulary, and poor memory so it is easy to forget the information that has been given. While EA is the student who gets the highest score because of the best language ability than other friends. Pronunciation of words is clear, vocabulary is quite a lot, and memory is good enough so that EA can receive information well.

The other six learners can follow the learning well. they remind and teach each other. If there are students who forget the name of the object in the picture, then the other learners will immediately answer, besides that if the learner's writing is wrong, then the other learners help to write the correct word. The existence of peer tutors that naturally occurs in this class can help researchers and students also understand the material.

The average score of 8 students before being awarded treatment (pre-test) *Mind Map* method is 49.30 and after being given treatment (post-test) the *Mind Map* method is 86.8. Based on the results there is a difference in the mean value deaf students' writing skills are further graphed for convenience read and understood.

Table 2. Result of before and after applying mind map



The graph above shows the difference in value (difference value) between the pre-test and post-test individually. Of the 8 deaf students, all of them experienced differences in results between the pre-test and post-test results on writing skills.

The results of this study are supported by Edgar Dale's theory, namely "The Cone of Experience" [13]. Edgar Dale explained the percentage ability to obtain information on learners against learning which is equal to 10% of what learners read, 20% of what learners hear, 30% of what learners see, 50% of what learners hear and see, 70% of what learners say and write, and 90% of the learner's experience. In research, this activity is carried out by viewing activities, reading, and writing. The teaching material that has been provided is in the form of a *Mind Map* that can be seen directly by learners at each meeting. Learners can read the material and rewrite it using the *Mind Map* made

independently by learners after getting an explanation and guidance. Existence student activities in making mind maps independently, they get direct experience of learning so that the percentage in obtaining information is getting bigger and giving effect significant in writing skills.

Giving learning material requires a method that can support interest in learning and be fun so that students easily absorb information and do not find it difficult with the material provided. A monotonous and non-varied learning atmosphere is one of the factors for the failure of students in the learning process [14].

In learning, students are guided to see the pictures on the *Mind Map*, then learners say the objects in the picture and then write them down in the columns provided on the *Mind Map*. Followed by recognizing the name of the activity in the picture, then speaking together and writing a description of the activity in addition to the previous writing, so that the word structure is formed into a meaningful sentence, representing images, and by language rules. After getting the material, students will make a *Mind Map* independently, starting from compiling, pasting pictures, and making curves on the *Mind Map*, to writing the appropriate information on the picture. In this activity, it was seen that all students were very enthusiastic and competed with their friends to complete the task first. The media needed consists of materials that are easy to find, such as paper, colored pencils, drawings according to the material, glue, and pencils. The use of colored pencils is intended so that the learners' *Mind Map* work does not look monotonous. [15] Instructional media will stimulate learners to be interested in teaching materials so that attractive, innovative, and supportive media are needed.

4. CONCLUSION

Conclusion Based on the research results H zero (Ho) is rejected and the working hypothesis (Ha) is accepted, $T_{value} = 2,52$ which is more than $C_{critical}$ which found the value of $5\% = 1.96$. This means that there is a significant effect of the *Mind Map* method on the writing skills of deaf learners. It is suggested that future research might focus on the same topic but the wider population.

REFERENCES

[1] A. R. Lederberg, B. Schick, and P. E. Spencer, "Language and literacy development of deaf and hard-of-hearing children: successes and challenges.," *Dev. Psychol.*, vol. 49, no. 1, pp. 15–30, 2013, doi: 10.1037/a0029558.

[2] S. Akhmad, "Aksesibilitas Penyandang Disabilitas terhadap Perguruan Tinggi," Yogyakarta : LKiS Pelangi Aksara, 2016

[3] B. MIF (Ed), "Bina Bicara, Persepsi Bunyi dan Irama,"

Bandung : PT Refika Aditama, 2013

Pengetahuan Sosial Di Sekolah Dasar,” *EduHumaniora / J. Pendidik. Dasar Kampus Cibiru*, 2016, doi: 10.17509/eh.v5i1.2836

- [4] M. Nancy, Barbara J. Wendling and Rhia Roberts, *Writing Assessment and Instruction for Students With Learning Disabilities*. San Francisco: Jossey-Bass, 2009
- [5] F. M. Alqraini, “Identifying similarities and differences on how deaf and hard of hearing students learn new vocabulary knowledge,” *Int. J. Instr.*, vol. 11, no. 4, pp. 61–74, 2018, doi: 10.12973/iji.2018.1145a.
- [6] M. Koutsoubou, “The use of narrative analysis as a research and evaluation method of atypical language: The case of deaf writing,” *Int. J. Biling. Educ. Biling.*, vol. 13, no. 2, pp. 225–241, 2010, doi: 10.1080/13670050903474119
- [7] L. M. van Beijsterveldt and J. van Hell, “Lexical noun phrases in texts written by deaf children and adults with different proficiency levels in sign language,” *Int. J. Biling. Educ. Biling.*, vol. 13, no. 4, pp. 439–468, 2010, doi: 10.1080/13670050903477039
- [8] M. Kuntze, D. Golos, and C. Enns, “Rethinking literacy: Broadening opportunities for visual learners,” *Sign Lang. Stud.*, vol. 14, no. 2, pp. 203–224, 2014, doi: 10.1353/sls.2014.0002
- [9] B. Tony, “Mind Map,” London : Thorsons, 2013
- [10] V. Paige, and Rebecca Giles. "Mind mapping: Making connections with images and color." *Delta Journal of Education* 6, no. 2 (2016): 1-10
- [11] E. Purbaningrum and U. N. Surabaya, “Pembelajaran Menulis dengan Pendekatan Menulis Proses bagi Siswa Tunarungu,” *Jassi Anakku*, vol. 9, no. 1, pp. 1–13, 2010
- [12] D. Zuchdi, Budiasih, "Pendidikan Bahasa dan Sastra Indonesia di Kelas Rendah" Jakarta : Depdikbud, 1996
- [13] H. M. Anderson and D. Ph, “The Cone of Experience,” *Theory Pract.*, vol. 9, no. 2, pp. 96–100, 1970, doi: 10.1080/00405847009542260.
- [14] A. W. Gunawan, *Genius Learning Strategy*, Jakarta: Gramedia Pustaka Utama, 2012
- [15] N. Sundari, “Penggunaan Media Gambar Dalam Meningkatkan Keaktifan Siswa Dalam Pembelajaran