

Meningkatkan kemampuan menulis anak autisme dengan pasir magnetik

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Abstrak: Penelitian ini dilatar belakangi oleh terdapatnya anak autisme yang masih belum mampu menulis walaupun dengan perintah yang terus menerus ditujukan kepadanya. Salah satu media pembelajaran yang diasumsikan dapat meningkatkan kemampuan menulis pada anak tersebut adalah pasir magnetik. Tujuan dari penelitian ini adalah untuk mengetahui penggunaan pasir magnetik dalam meningkatkan kemampuan menulis pada anak autisme di Laboratorium pendidikan Khusus. Penelitian ini merupakan penelitian eksperimen dengan pendekatan *Single Subjek Research* (SSR) dan desain penelitian ini menggunakan desain A-B-A. Teknik pengumpulan data dilakukan dengan cara observasi dan dokumentasi yang selanjutnya dianalisa menggunakan analisis dalam kondisi dan antar kondisi. Penelitian ini dilakukan selama satu bulan dengan sesi 4-8-4 (A₁-B-A₂) dengan target *behavior* membuat bentuk-bentuk garis dan membuat huruf vokal. Data yang didapat pada target *behavior* 1 adalah 40% pada fase *baseline* 1 (A₁), 80% pada fase intervensi, dan 71,25% *baseline* dan target *behavior* 2 adalah 35% pada fase *baseline* 1 (A₁), 80% pada fase intervensi, dan 71,25% *baseline*. Dari hasil penelitian tersebut dapat disimpulkan bahwa penggunaan pasir magnetik dapat meningkatkan kemampuan menulis pada anak autisme di Laboratorium Pendidikan Khusus.

Kata Kunci: pasir magnetik, anak autisme, kemampuan menulis.

Improving autistic children's writing skills by using magnetic sand

Abstract: The research is motivated by empirical evidence that an autistic children has not been able to write even with continuous instructions. One of the learning media that is assumed to be able to improve the writing ability of the child is magnetic sand. The purpose of this study was to determine the effectiveness of using magnetic sand in improving writing skills in autistic children in the Special Education Laboratory. The research used an experiment by using the Single Subject Research (SSR) approach. The A-B-A was employed as the research design of this research. The data collected by observation and documentation and analyzed by using in condition and among condition analysis. The research was conducted in a month by 4 – 8- 4 (A₁ – B – A₂) section and by behavior target which made line shapes and vocal letters. The data was obtained on behavior target 1 was 40 % in baseline phase 1 (A₁) 80% in intervention phase, and 71,25 % in the baseline, and behavior target 2 was 35 % in baseline phase 1 (A₁), 80 % in intervention phase and 71,25 % in the baseline. The result shows that the use of magnetic sand as a medium effectively improves the student's writing ability.

Keywords: *Magnetic sand learning, an autistic student, writing ability in the beginning.*

PRELIMINARY

Children with special needs are children who are experiencing significant abnormalities in their development process (physical, mental-intellectual, social, emotional) compared to other children of their age so that they require special education services. Children with autism are one of the types of special needs. Autism is a very complex neurobiological developmental barrier or disorder that exists in behavior, social interactions, communication, language, emotional disorders, sensory perception, and motor skills that appear in children before 3 years of age.

Accompanying characteristics in autistic children are emotional disorders such as laughing and crying for no apparent reason, inability to empathize, excessive fear, and so on. Other accompanying characteristics include motor coordination and sensory perception such as jumping, throwing balls in all directions, covering your ears sometimes crying when you hear loud sounds, not feeling pain, not

understanding the dangers and also cognitive impairment (Yuwono, 2012: 26-27). In addition, characterized by frequent use of strange language, excessively maintain of things, fixation on an object, having no eye contact, rotating objects, echolalia, and sometimes doing self-harm (Meranti, 2014: 6-8). In the context of this study, several symptoms were identified in research subjects in the aspects of communication, delayed speech development. The child does not appear to be trying to communicate verbally. The child often uses language that is not understood and repeated. Sometimes the child often pulls the other person's hand to show something the child wants.

Writing skills are one of the difficulties experienced by children with autism. This is due to several factors (Yusuf, et al, 2003: 25) such as the size and distance between letters in writing, the slope of the letters when writing, difficulty holding a pencil steady, writing inconsistently, and pressure on the paper when the child starts writing. Most autistic children have problems with their motor skills, this will affect their writing skills, because in writing activities require the skills to hold the stationery properly. Hallahan, Kauffman, dan Lloyd (1985: 235) Writing, like reading is a basic skill that every human being must have. Writing is also one component in learning. Based on Hargrove dan Poteet (1984: 239), writing is a component of the communication system and describes thoughts, feelings, and ideas in the form of graphic language symbols and is done to record and communicate with pens or other writing instruments. Writing activity always involves the movement of the hands, arms, fingers on the hands, eyes, coordination of learning experiences, and cognition, all of which work in an integrated manner. These movements become one of the children's burdens in writing, therefore writing is not an easy thing to do quickly and quickly.

Writing (High Scope Child Obser varian Record in Susanto, 2011: 34) is a learning program that is oriented towards the ability to write in the beginning in the early classes when the child starts entering school. In the early stages, children enter school in Grade 1 elementary school, early writing begins with pre-writing (holding a pencil, hand movements in writing), drilling or thickening with carbon or thin paper, thickening or connecting dots to form letters, and staring (eye coordination, memory, and fingertips). Writing learning activities are continued by copying writing, fine writing, dictation, completing writing (with letters, syllables, and words), and writing names.

Based on observations at Special Education Laboratories, researchers found a child who had not been able to write well as seen from the inadequacy of children in writing at school who were now in junior high school. Many ways are taught by teachers in training their students for writing skills such as give practice, dictate, or write things around, but an innovation in practicing writing skills is needed An innovation in learning becomes one of the points to facilitate, attract attention, and arouse the stimulus of students in learning so as not to seem monotonous. This situation has made the writer aware that he once taught the students to try one of the learning approaches that can improve the students' writing skills in writing beginnings with more variety, namely by writing on a magnetic sand, where with this activity giving exercises to motor movements on the hand and his finger in writing skills also gives a pleasant impression because of learning while playing.

Magnetic sands is beach sand which is given color to make it look more attractive. Magnetic sand which can be used to help train gross and fine motor and eye and hand coordination. Sand is also a fun medium for children long ago until now and also honed psychomotor, cognitive, sensory, social emotion and language skill. Previous studies revealed as stated by Suwartini and Zainul Aminin (2014: 46) in a study entitled "Application of Sand Play Activities to Improve Fine Motoric Ability of Rainbow PPT Children" that use of sand play media can improve children's fine motor skills in PPT Pelangi Surabaya, then according to Kasdanel, Petrin (2013: 35) in a study entitled "Sensory Integration Effectiveness to Enhance Beginning Writing Ability In Autistic Children at TI-JI Home Schooling Padang" that can be concluded Sensory Integration methods are effective in improving writing skills for children beginning at Autism Home Schooling Padang Tiji. In line with what was stated by Laurent, S.L. and Giasson, J. (2005: 7) in a study entitled " *Effects of a Family Literacy Program Adapting Parental Intervention to First Graders' Evolution of Reading and Writing Abilities* " that pre-test and post-test group comparisons indicate that the workshop program has a positive effect on the children's performance in both reading and writing.

Based on the background descriptions, it can be identified that students who are already in second-grade junior high school experience communication problems, experience obstacles in the academic field, namely writing (preliminary writing). Magnetic sand is assumed to be one of the

media as an effort to develop the writing skills of early autistic children. So the authors conducted research on improving the writing skills of children with autism by using magnetic sand.

METHODS

In this study, the quantitative approach used the experimental method. Cresswell (2012: 295) explains that experiments are used when researchers want to establish possible causation between independent variables and dependent variables. The experimental method used in this study is single-subject research (single subject research), which is a study “conducted to determine the effect of a treatment given to the subject repeatedly in a certain time and focus on data changes in individual behavior caused by the provision of treatment or intervention in the subject under study” (Sunanto, 2006: 44).

The research design with a single subject or *Single-Subject Research* (SSR) used is A1-B-A2, which is research that shows a causal relationship between independent variables is the use of magnetic sand and dependent variables are improving writing ability, through three stages to study the magnitude of the effect of a treatment or intervention given to the individual. As for the general stages of playing sand are (1) Allow the child to explore and feel the texture of the sand, (2) Give examples to children how to write letters on the sand. (3) Freeing children to feel the experience of writing letters on the sand. (4) Provide letter cards as a tool. (5) Give an example of making a line on the sand. (6) Freeing children to feel the experience of making lines on the sand. The addition of the second baseline condition (A2) is intended as a control for the intervention phase so that it is possible to conclude the functional relationship between the independent variable and the dependent variable.

Data collection techniques carried out at the time of the study were using test data collection tools. The test used by the researcher is a test of learning outcomes (achievement test) the achievement writing test is make a line shape and make a vowel letters. According to Arikunto (2013: 194) the learning outcome test is a test used to measure a person's achievement after obtaining a learning. The data analysis technique uses simple descriptive statistics that focus on individual data, the presence or absence of the effects of independent variables or interventions on the dependent variable in a single subject study is also influenced by the design used. The visual analysis method used is displayed in graphical form as a detailed explanation of the description of the implementation of the experiment before and after the treatment is given. The graph data is obtained from the child's answer score from each session which is then presented using a formula.

$$\text{Persentase} = \frac{\Sigma \text{jumlah tes menulis yang dikerjakan dengan benar}}{\Sigma \text{jumlah soal}} \times 100 \%$$

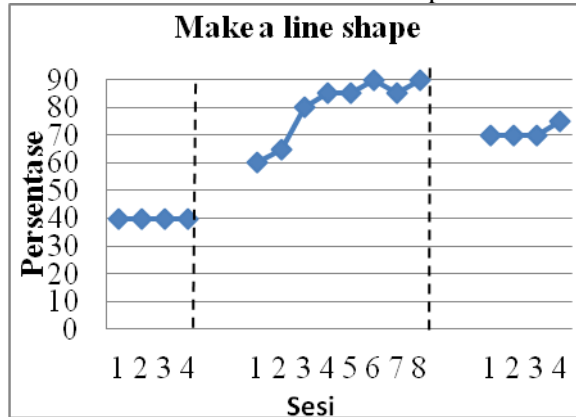
Then analyzed using analysis in conditions and between conditions. Analysis in the condition is an analysis of changed data in a condition such as a baseline condition (A1) or intervention condition (B). As the components that are analyzed in this condition are (1) length of conditions, (2) direction trends, (3) stability trends, (4) trace data, (5) ranges, (6) level change. Analysis between conditions is a change data between conditions, such as baseline condition (A) to intervention condition (B), or intervention conditions (B) to baseline 2 conditions (A2). As the components that are analyzed in-between condition is (1) amount of variables change, (2) direction trends change and effects, (3) stability trends change and effects, (4) data level change, (5) overlap.

RESULTS AND DISCUSSION

Result

The results were obtained through the target behavior 1 visual graph analysis at baseline phase 1 (A1), Intervention phase, and baseline phase 2 (A2).

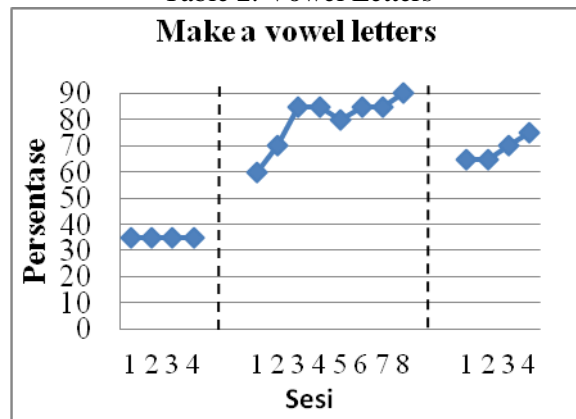
Table 1. Make a line shape



The target behavior 1 is to make line shape obtain a 40% result in the baseline phase 1 (A1) which is a natural condition without any treatment or intervention on the subject. Furthermore, some changes increase in the intervention phase with an average of 80%, the data is obtained because the subjects have been given treatment or intervention using magnetic sand media. In the baseline phase 2 (A2) obtained 71, 25 %, this data is in a natural condition v data in the baseline phase 1 (A1), intervention phase, and baseline phase 2 (A2) is concluded that the use of Magnetic sand can increase the ability to write the beginning of the target behavior makes line forms, marked by changes in the larger data in the baseline phase 2 (A2) to the baseline phase 1 (A1) with the direction trend line increasing from baseline phase 1 (A1) to phase baseline 2 (A2) .

Visual analysis of target behavior chart 2 in baseline phase 1 (A1), intervention phase, and baseline phase 2 (A2).

Table 2. Vowel Letters



The behavior 2 target is to make vowels letters (a, i, u, e, and o) obtain a 35% result in the baseline phase 1 (A1) which is a natural condition without any treatment or intervention on the subject. Furthermore, there are changes that increase in the intervention phase with an average of 80%, the data is obtained because the subjects have been given treatment or intervention using magnetic sand media. In the baseline phase 2 (A2) obtained 70%, this data is in a natural condition after the subject is given treatment to find out the effect of using Magnetic sand in improving initial writing skills. Data on baseline phase 1 (A1), intervention phase, and baseline phase 2 (A2) concludes that the use of Magnetic sand can improve the ability to write the beginning of the target behavior to make vowels letters (a, i, u, e, and o), marked by greater data changes at baseline 2 (A2) to baseline phase 1 (A1) with directional trend lines increasing from baseline phase 1 (A 1) to baseline phase 2 (A2). Increases in the Baseline-2 (A2) phase compared to Baseline-1 (A1) occur because of the significant

influence of the intervention process, marked by the treatment, so that the child is able to experience a stable development.

In target behavior 1, which is making line shapes get 40% results in baseline phase 1 (A1) which is a natural condition without any treatment or intervention on the subject. Furthermore, there are changes that increase in the intervention phase with an average of 80%, the data is obtained because the subject has been given treatment or intervention using magnetic sand media. In the baseline 2 (A2) phase, 71.25% was obtained, this data was in a natural condition after the subject was given treatment to determine the effect of the use of magnetic sand media in improving initial writing skills. Then the data in the baseline phase 1 (A1), the intervention phase, and the baseline phase 2 (A2) concluded that the use of magnetic sand media can improve the ability to write the beginning of the target behavior to make line shapes, characterized by greater data changes in the phase baseline 2 (A2) to baseline 1 (A1) phase with a trend toward increasing line from baseline 1 (A1) to baseline 2 (A2)

In target behavior 2, which makes vowels (a, i, u, e, and o) get 35% results in baseline phase 1 (A1) which is a natural condition without any treatment or intervention on the subject. Furthermore, there are changes that increase in the intervention phase with an average of 80%, the data is obtained because the subject has been given treatment or intervention using magnetic sand media. In the baseline phase 2 (A2) obtained 70%, this data is in natural condition after the subject is given treatment to determine the effect of the use of magnetic sand media in improving initial writing skills. Then the data in the baseline phase 1 (A1), the intervention phase, and the baseline phase 2 (A2) concluded that the use of magnetic sand media can improve the ability to start writing on target behavior making vowels (a, i, u, e, and o) , marked by changes in greater data in the baseline phase 2 (A2) to the baseline phase 1 (A1) with a trend toward increasing line from the baseline phase 1 (A1) to the baseline phase 2 (A2).

Discussion

From the results of research conducted on problems faced by children with autism, it seems to be the task of an educator to be able to solve these problems. The problem that arises is the instability of autistic children in motor development in the form of writing skills. Children with autism have not been able to write, even though the commands are carried out continuously directed at him, but the development has not been seen to him. Based on the existing problems, the researchers tried to solve the problem, namely with the help of a media, this media is assumed to be able to improve children's ability to write, namely with magnetic sand media. From before and after the magnetic sand media was used, it was seen that positive changes occurred in children's writing skills, supported by the achievements of the children.

In this research, there is increasing data showing that the magnetic sand media can improve the initial writing ability, the increase is supported by the magnetic sand media. The sand gives a pleasant impression if it is used as a learning medium and helps hone psychomotor, cognitive, and sensory abilities which ability is a factor in the initial writing process. Kurniasari (2014) also stated that sand is one of the fun media for children from ancient times until now. Mudjito (2008: 52) playing sand is a constructive play where children are able to turn their thoughts, ideas and ideas into real work. Sand media is one of the media that can hone psychomotor, cognitive, sensory, social emotional, and language abilities when children play with sand. Einon (2006: 139), who explained that sand is a versatile material for children to experiment and also sensory materials such as sand can relieve and make children comfortable.

In this magnetic sand learning media has presented scenarios that can be used as a reference for the subject, looking at the effects obtained during the study, in each phase the results obtained get a steady increase from Baseline (A1) before being given treatment then to the intervention and to the baseline (A2), the subject appears to have improved writing skills, with the help of the media provided during the research process, so that the magnetic sand media can be used according to its purpose. After conducting research using the magnetic sand media, there are weaknesses in the media besides the advantages seen with an increase in initial writing skills. Based on the explanation above, it can be concluded that the use of magnetic sand media can improve the ability to write of autistic children. By obtaining a positive influence from research using magnetic sand media, it is hoped that sandbox learning media can be applied to autistic children with other writing barriers. Not only the

application but with the discovery of this media, it can be used as a tool that brings benefits to its users and is able to solve every problem in managing motor skills, even the results can improve writing skills in autistic children.

CONCLUSION

Conclusion

The results showed that the use of magnetic sand media could improve early writing skills in children with autism. This can be seen from the percentage data in the intervention phase and baseline phase 2 which is higher than the baseline phase 1 which shows that the subject's ability to write initially increases after treatment or intervention.

Suggestion

Based on the research results, magnetic sand can improve writing skills and can be used as an alternative medium in pre-writing learning by teachers in pre-writing learning for autistic children at school. For further researchers, it is suggested to develop other aspects of the media to make it more attractive so that it can produce a more optimal skill impact on children with autism.

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PROFILE

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