

Brain Gym Video Model for Improving the Beginning Writing Abilities of the Autistic Students

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Abstract: Language is a very necessary thing, especially in writing the beginning. Beginning the writing requires a fine motor ability which is adequate. The fine motor in the students with an intellectual disability is impaired so requiring movement that can coordinate motoric. Brain gym is a simple movement that can be used to train cognitive, motor and flexibility the small muscles of the fingers and coordinates the brain with the shoulders, arms, and eyes. The purpose of this research is to produce brain gymnastics. This video is packaged in CD format which is expected to help students to write the beginning. The research and development method that used in this research was adapted from the Borg & Gall model. The results showed that the brain gym was feasible and effective was applied for the intellectual disability after validation by media experts, brain gym experts, and learning experts, as well as pretest and post-test. Utilization suggestions of this research are: (1) for students: students should pay attention to teacher's movement and instruction, (2) for the teacher: pay attention to student's difficulty in moving, especially hand moving.

Keywords: Brain Gym; Language; Intellectual Disability

INTRODUCTION

A language is a communication tool between the human that can be a place to putting ideas in mind. Language learning had 3 kids there are: reading, writing and calculating. In the case, the researcher is just researching about writing the beginning. Writing is one of an important aspect of the learning process. Writing is not just making a streak with hand or copying in writing shape. However, through writing, we can express what they experienced. Writing is a kind of hols that is very effective in studying that can play an important rule in the field of education (Kusumaningsih & Suparmin, 2013).

Writing the beginning in SLB, basically emphasized to make easy for the student to follow writing lesson like familiarize student to merging dots that will form a letter, and how far children can be able to thicken, imitate stroke, number and letter. According to Razak (2014), that writing the beginning is kind of writing that has taught to 1st class and 2nd class in elementary school. We name that because in writing the beginning more preferably introducing letters and position or function in letter and sentences.

Writing is a complex activity that requires to integrate arm movement, hands, fingers and eyes. So it can allow children to write well. According is the definition above we can conclude that writing the beginning is a complex activity, that must merge between brain and hand with fingers. Writing this beginning skill emphasized to children's skill in merging dots, stroke,

and graphics so it will be letters symbol that can be understood, writers or readers.

This writing the beginning is very needed coordination of senses and basic skill in writing. Like moving the hand and making a good stroke. The success of writing is affected by cognitive and fine motoric skill and senses coordination. Aristiyani (2015), there is 9 statement in studying on writing like development readiness, the balance of shoulder's balance, forearm control, the stability of wrist, grasp, bilateral hands, sensory experiences and eye, hand and arm coordination.

Muscle stiffness in children can be practiced by children muscle training with the movement that allows children can relax. The stiffness or children's muscle. Various types of physic activities that allow's doing aerobic, anaerobic etc. One then can be used in brain gym which has been created by Paul Dennison in 70's (Dennison & Gail, 2002). The brain gym program has helped a lot of children that have been the developmental disability and learning disability (Afandi, 2013). Brain gym an experienced that strung together from dynamic movements and involve a balance of left brain and right brain at the simultaneously.

Movement in the brain gym is allowed students to train hard flexibilities, and fingers trough stimulus from the brain. Brain gym emphasizes a body movement to harmonize brain function. Writing skill is controlled trough left brain and right brain that serve as the introduction of shape or space. brain gym is a method to stimulate the brain that can activate the

brain in 3 dimensions there are: liberating, focusing and centralized brain regulation.

Afandi (2013), said that there is 3 more mechanism of brain gym, there are: (a) literal dimension (for the right and left brain hemispheres), the purpose of this dimension is for optimize student's learning skill. While the movement on this dimension for increasing hearing, seeing, writing and moving activity, (b) focus dimension (the back of the brain or brain stem and the front of the brain). This dimension can help readiness and concentration for accepting something new and expressing everything that had known by children, (c) centering dimension (for the limbic system) and big brain. In this dimension, it can help to increase the energy, like walking, organizing, and testing. It has an advantage for helping control the emotion (Diana *et al.*, 2017).

Brain gym movements can help children with the intellectual disability by doing some sensory or motor activity. Children with intellectual disability have obstacles in their fine motor skill. So, with this brain gym movements, children can train their fine motor skill through stimulus from the brain gym. Brain gym movement is very advantageous to activate the inner side of the brain, especially the language area.

Children with intellectual disability are children that have a low grade of intelligence than another normal child. Efendi (2006), said that someone could be categorized by the mental disorder or intellectual disability if they have a low grade of intelligence. So, in the developmental process, they need some help and specific facility in some aspect, especially in education aspect. Children with intellectual disability have to limit one of their limits is learning difficulties in school especially is language skill (reading, writing, calculating).

Based on observation, that held in DLB Kemala Bhayangkari Trenggalek researches found children that had difficulties in distinguish alphabets symbol, they had difficulties of distinguishing letters a, o, e, p, d, b, s, and k and their wrist movement is still difficult and stiff so when the had thickened dots and pot a stroke the result is not nice and messy. From that case, researches wanted to know how far children with intellectual disability can do writing the beginning with giving stimulus like video development of brain gym.

Like earlier research by Elisa (2016) entitled "Brain Gym Usage for Increasing Writing Skill of Writing the Beginning to Children with Mild Intellectual Disability in D Grade of SDLB Al Azhar Bukit Tinggi"

METHOD

Based on the purpose of this research and development in producing media video learning that makes it easier students to activate coordination system (brain, hands, eyes, and fingers), so it can help students

to their linguistic skill (writing the beginning). This development model is using research and development (R&D) mode (Hasyim, 2016).

Sugiono said that R&D method is a research method that is using for produce a product and testing the effectiveness of that product. Akbar (2016), said that this research and development is a process step by step for make a new product which can be satisfied. The purpose of this research and development is for developing, advantages testing and product effectiveness that is development (Hasyim, 2016).

There are some step by step of Borg and Gall design (1) research and collect information, (2) Plann, (3) Develop Product, (4) Initial Trial, (5) Revision Product, (6) Field Trial, (7) Revision of Field Trials, (8) Operational Product Trial, (9) Revision Product, (10) Implementation and Dissemination. Researcher use 7 step from 10 step of Borg and Gall R&D model, because this 7 step has considered the characteristic which will be examined and the limit of time, energy, and cost owned researches. According to Coach is like (1) research and collect data, (2) plan, (3) develop the initial product, (4) validation the initial product, (5) revision of the initial product, (6) field trial, (7) revision final product (Hasyim, 2016).

1 until 7 steps R&D model are (1) do some research and collect information and data include literature review and need analysis, (2) planning the product, (3) developing the initial form of product (researches make various brain gym product for language learning especially writing the beginning learning from the first step until implementation of audiovisual form), (4) validating process that has been given by experts, (5) revision product from evaluation experts result that has been used for repairs to the initial product that has made by researcher, (6) group testing use 7 children with intellectual disability, (7) revision the final product based on field testing and producing various of brain gym exercise in video training or audiovisual product.

The purpose of the product in this research is to get the suggestion from the experts for improvement or perfect this product and used to collect data as the base for setting the feasibility level of product. In this past there are some aspects there are trials design, trials subject, the variety of data, an instrument of collecting data and data analysis technique. Trials design have done with 2 step there is the evaluation of experts and students trials. (a) experts evaluation is taken with using questionnaire by 3 experts. They are 1 media expert, 1 material experts I (brain gym), and 1 material expert II (classroom teacher), (b) students trials have done to 7 students in SDLB Kemala Bhayangkari Trenggalek. Trials subject who are involved in this research and development are: (a) evaluation subject, consist of 1 media experts, 1 material experts I, 1 material expert II t. (b) trials subject of the student has done to 7 students of SDLB Kemala Bhayangkari Trenggalek.

Table 1. Validation Experts Result

No	Validator	Percentage
1.	Media experts	92%
2.	Material experts 1	90%
3.	Material experts 2	93,75%

Table 2. Pre-test Trial Results

No	Name	Score obtained	Score maximal	Constanta	Total Score
1	1	13	20	100	65
2	2	9	20	100	45
3	3	9	20	100	45
4	4	9	20	100	45
5	5	16	20	100	80
6	6	16	20	100	80
Total Score			360		
Average					60

Table 3. Post-test Trial Results

No	Name	Score obtained	Score-maximum	constanta	Total score
1	1	17	20	100	85
2	2	15	20	100	75
3	3	15	20	100	75
4	4	15	20	100	75
5	5	19	20	100	95
6	6	19	20	100	95
Total Score			500		
Average					83,33

The type of data obtained is quantitative and qualitative data. Quantitative data is data in the form of numbers which obtained through the questionnaire that shared with experts, they are media experts, brain gym experts, and special education experts. Qualitative data obtained through observation, interview, and questionnaire which contain (suggestion and criticism from the expert). The instruments that used in this research and development are (a) validation questionnaire, (b) test learning result, (c) interview and (d) observation. Analysis technique data has used qualitative and quantitative analysis data. Qualitative data is observation result, interview and questionnaire (suggest and criticism) for experts. While quantitative data has obtained from the questionnaire that has been filled by experts.

FINDINGS AND DISCUSSION

Findings

Based from that data: first, validation from media experts of table 1, so researcher calculated the percentage of media feasibility and got result 95,83%

so it can so it can be stated very worth it and very valid to use in the learning process. As for the suggestion of improvement that has given from media, experts are (1) the lighting in the video need to be enlightened. (2) gave second, the guidance of utilization, (3) gave product specification in CD or DVD's cover. Validation of material experts 1 in table 1 then calculated the percentage of media feasibility and got result 90% so can be declared very worth it and very valid to use in learning process.as for suggestion of improvement that has given from material experts 1 (brain gym) was the movement between right hand and left hand must balance while writing, so tried to do writing movement, use right hand and left hand alternately. Third, validation from material experts 2 from table 1, then calculated the percentage of media feasibility and got 93,75% as a result. So it can be declared very worth it and very valid to use in the learning process. As for the suggestion of improvement that has given from material experts is video appearances must be made more interesting.

Trials data of the product in the field has gotten from pre-test and post-test to 6 students. Writing the beginning practice is consist of 5 assessment items which cover burst and pull the dots, make a flat form (square, rectangle, circle), clarity of writing letters, differentiate letters and activate the hands.

The result from pretest and posttest that has been done in table 2. Mean score of all students pre-test is 60 it means that children skill writing the beginning is medium, while all students post-test is 93,33 it means that children skill of writing the beginning is high. The conclusion that has been gotten is "pre-test score is less than post-test" or "pre-test score is increasing" so media brain gym video that has been developed is an effective media because trials result increasing.

Discussion

The product that has been developed by researcher is brain gym to train writing beginning for children with intellectual disability, this product has an excellent movement that has been adjusted with the characteristic of children with intellectual disability and there are some implementation that facilitates the children to train hands, fingers, shoulders, eyes, and brain coordination. According to Sawitri (2017) said that the main modal in writing the beginning is hand and fingers using the skill. Children with intellectual disability with intellectual disability have difficulties to activate their hands and brain so they have difficulties in writing the beginning. Besides, in writing the beginning needs adequate cognitive and motoric skill (Aristiyani, 2015) said "a lot of small muscle in the hands, palms, and wrist".

Brain gym has the movement that can activate and hold the brain's function. So it can coordinate brain with

eyes, hands, fingers, so children can be active the stiff muscle. Aristiyani (2015), said that a brain gym could be done to train cognitive and motoric function. Brain gym that has been developed in writing the beginning are (1) lazy eight's, (2) alphabet eights, (3) arm activate and (4) multiple strokes (Yanuarita, 2014), other than that some implementation are merged the dots use left and right hands, draw circle, triangle, and square.

According to Yanuarita (2013), from brain function is divided into 2 sides that have 3 dimensions which are interconnected. So, if it can use all of the brains, brain function can be optimal. So as children with intellectual disability that have low cognitive and motoric skill. It is causing difficulties in the learning process, especially in writing the beginning aspect.

Learning media in school has various shape. one of them is video, audiovisual media is a media that involve audio and visual sense in one process. Gagne and Briggs implicitly said that learning media involve tools that can physically help to deliver the lesson which in involves, book tape recorder fil, slide video and tapes. Learning media is the success if can give a good stimulus to students when learning process.

In this development, it has been done needs analysis in SDLB Kemala Bhayangkari Trenggalek its 2nd class with an interview with teachers an observation during the learning process. During the process of making brain gym video not apart from the assessment and suggestions from the experts, there is the material expert I, material expert II, and media expert. Suggestion from the experts used to improve the product.

Making brain gym development for train writing the beginning skill of children with intellectual disability in SDLB Kemala Bhayangkari Trenggalek may possible errors and deficiencies. So, development product start from design the product until this product can finish but still have some revision for getting the maximal product. As an effort for maximizing the development product while making the product we need some evaluation from experts, there are: media experts, material experts I (brain gym), material experts II (class teacher) and do some trial.

According to Elisa (2016) research with title "the Usage of Brain Gym for Increasing Writing the Beginning of Children with Mild Intellectual Disability D IV Class in SDLB Al-Azhar Bukit Tinggi" found that writing skill of children with intellectual disability in increasing with brain gym. It prof that: brain gym can help children is language aspect (reading, writing, calculating), proofed again by Pranata (2011) research with title "Alphabet 8s in Resolve the Writing and Reading Difficulties (Dysgraphia and Dyslexia) children with Mild Intellectual Disability that give a Result that Alphabet 8 is Affect Positively on Resolve Reading and Writing Children with Mild Intellectual Disability in VI

Class SDLB C Setya Dharma Surakarta".

The difference for earlier researcher, this research is includes some brain gym movements like (1) Lazy eight's that has advantages to know the differences and memorize the letters symbol, (2) alphabet 8 that has advantages to coordinate eyes and hand then memorize and know the differences of latter symbol, (3) arm action that have advantages to activate the hand while helps to writing and make the shoulder feel relax, (4) multiple scribbles that are used to facilitate the writing and relax eyes that respond to brain activity of children (Yanuarita, 2013). In addition, there is an implementation in the brain gym so it adds the right value for the child.

The advantages of this product are (1) easy to operate, (2) don't need a long time in implementation, (3) facilitated with guiding book to implementing brain gym, (4) the appearance content is adjusted to children condition and student needs in school, (5) this video is facilitated with implementation using right and left hand. The deficiency this product or media is limited with media player. It can be used if there is a laptop or computer.

CONCLUSION

The result of this research and development can be summed up that: (1) based on the result and evaluation from the experts is development product of brain gym video on language learning in SDLB Kemala Bhayangkari Trenggalek have interactiveness, convenience and match with children with intellectual disabilities characteristic for train their writing the beginning skill and match with the material that has been learned, (2) based on trial evaluation of product has summed up that development product of brain gym video on language learning inSDLB Kemala Bhayangkari Trenggalek interactiveness and usability or media is clear while train children to activate their motoric so it can train their writing the beginning.

There are suggestion which is spelled out by the researcher there are: (a) suggestion for students in this video students must pay attention to the movement and interaction from teacher, (b) before implementing brain gym video for smoothness of learning process, teacher should prepared electrical equipment support, for example, LCD, speaker, and laptop. Read accurately guiding book and pay attention student difficulties of movement especially hand movement, (c) for another developer that need make the same development topic with video product, researcher suggests to more reviewing about movement selection and implementation and video format selection must be adjusted with the material characteristic. The researcher expects there are nest research and the effectiveness of using brain gym video in class.

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