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The Design Of Visual Media Based On Ict To Improve The Beginning Writing Of Autistic Spectrum Disorder Students In Elementary School

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Abstract .The purpose of this research is to produce the design of visual media development based on ICT (Information Communication and Technology) to improve the students' initial writing of Autistic Spectrum Disorder (ASD) which is suitable to be used to support the learning process of writing Autistic Spectrum Disorder (ASD) students. This research uses research and development (R&D) model from Borg & Gall which is simplified into 3 stages, namely, (1) potential and problems, (2) data collection, and (3) product design. Data collection techniques in this study are observation, interviews and documentation. The results of this study is the design of the development of visual media based on ICT (Information Communication and Technology) to improve the beginning writing skills of Autistic Spectrum Disorder (ASD) students in elementary School.

Keywords: Visual Media, ICT, Beginning Writing, Autistic Spectrum Disorder (ASD)

1. Introduction

The ability to write for elementary school children is a very important aspect to be taught to students. Writing skills are a process that demands students in terms of experience, time, practice and regular ways of thinking to express desires that are desired. Children with Autistic Spectrum Disorder (ASD) generally have difficulty in writing.

The beginning writing in elementary school is a writing skill that must be mastered by elementary school children, especially low class. Where preliminary writing is the initial stage so that children can write smoothly and well at school. This is in accordance with Suptiyadi's opinion that beginning writing is a teaching conducted by the teacher which emphasizes the method of preliminary writing, where at this stage, students must be mastered of the initial writing ability to smooth the next learning process (Supriyadi, 1995).

Children who are diagnosed with Autism Spectrum Disorder (ASD) are very different from other children, it can be seen from the attitude, communication, language of children when interacting with their friends or with other people in their environment. This is supported by the opinion (Carr, 2001) argues that Autism Spectrum Disorder (ASD) is a disorder associated with pervasive development. Children who are diagnosed with this disorder are can usually be seen when they are 3



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years old, that there are behavioral disorders and deficits that differ from one child to another and can usually be seen from the child's social interaction, language, social communication, imagination, playing symbols, and repetitive behavior patterns.

The importance of writing beginning for an autistic child is as a support in the communication system. According to Yuwono, the delay in communication and language is a prominent feature and always possessed by autistic children. When an autistic child cannot communicate verbally but already has writing skills, the autistic child can express his wishes through writing (Yuwono, 2009).

After in-depth observation of students with autistic disorders in one of the primary schools based on inclusion in Sidoarjo, found a description of the initial difficulties as follows: (1) students have difficulty writing in the beginning during the learning process; (2) non-readability of vowel and consonant letters in the writing of students with autistic disorders (3) slow in the writing process causing students to lag behind their peers during learning. (4) lack of focus when writing learning, it can be seen from students' doubts about classroom teacher instruction

Based on observations that have been made, that one of the learning difficulties experienced by children with Autism Spectrum Disorder (ASD) is the difficulty of writing early due to internal and external factors in autistic students. One solution to overcome these problems, there should be the development of learning media that are adapted to the learning styles of autistic students.

Learning media is used to facilitate students in receiving material or information conveyed by the teacher. With learning media, students more easily receive material delivered by teachers, especially children who experience Autism Spectrum Disorder (ASD) who have difficulty writing will be helped by learning. This is supported by statements (Heinich, 1982) which argues that instructional media are learning aids in the form of pictures, audio recordings, photographs, films, and projections used by teachers that contain messages or information related to the lessons to be conveyed by teacher to facilitate students in receiving information.

The media that is suitable for students with Autism Spectrum Disorder (ASD) is using visual media because children with Autism Spectrum Disorder (ASD) are more likely to be learning visually (Vellonen, Kämä, & Virnes, 2012). In the present era visual media is further developed into a technology that is used to facilitate students in learning. With visual media based on ICT (Information Communication and Technology) can improve the ability to write early when learning takes place. Media based on ICT (Information Communication and Technology) can facilitate students in learning.

Visual media based on ICT (Information Communication and Technology) is used in learning based on technology, information and communication (Maimun Aqsha Lubis & Ismail Suardi Wekke, 2007) This media is used for students and teachers to have competence in utilizing information technology as hardware and software in analyzing, processing, and transmitting data. By utilizing technology, teachers and students can use it as a communication material in learning.

This media was chosen to be very suitable to be used in the present era where all technology-based is also to attract students' interest in learning and help students in training students in practicing writing correctly.

After knowing the problems contained in the introduction, the formulation of the problem is: (1) How is the analysis of the needs of visual media based on ICT (Information Communication and Technology) to improve the initial writing of Autistic Spectrum Disorder (ASD) students? (2) How is the design of visual media products based on ICT (Information Communication and Technology) to improve the writing of the beginning of the Student Spectrum Disorder (ASD)?

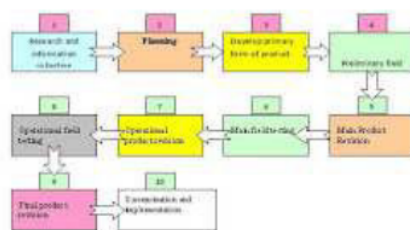
From the formulation of the problem above, the purpose of this research is to produce the design of visual media development based on ICT (Information Communication and Technology) to improve the students' initial writing of Autistic Spectrum Disorder (ASD) which is suitable to be used to support the learning process of writing Autistic Spectrum Disorder (ASD) students.

2. Method

¹ In this study, researchers used the development research method in the form of ³ Research and Development (R & D). According to (Sugiyono, 2014), development research is a research aimed at being able to produce a specific product that is needed and can test the success of the product that has been made. In this study the products that will be developed or produced are visual media based on ICT for writing autistic children. This ICT-based visual media is expected to help autistic children to write a beginning.

2.1 Development Procedure

The development research procedure used in this research is Borg & Gall's R&D model adopted by Sugiyono. In this model there are 10 steps that are used, namely: (1) problems and potential, (2) data collection, (3) product design, (4) product validation, (5) product revision I, (6) product trials, (7) product revision II, (8) usage test, (9) product revision III, and (10) mass production. However, researchers used 3 steps to research, because this initial stage of research only produced a design.



⁸ Borg & Gall (Gall, Gall, & Borg, 2007)

2.2 Data Collection Technique

Data collection techniques conducted by researchers using observation, interviews, and documentation. Observations were made for autistic students with the aim of knowing the potential possessed by students. Meanwhile, at the interview stage carried out by researchers towards teachers and parents, with the aim of knowing information related to autistic learning styles of students. Finally, documentation techniques are used to document the results of student writing, in addition to being used to support the results of observation and interview data.

2.3 Research Instruments

The research instrument used in this study is observation guidelines and interview guidelines. Observation guidelines are used to observe the initial writing ability of students with disorders of Autistic Spectrum Disorder (ASD). Interview guidelines are used to interview teachers and also parents of students with disorders of Autistic Spectrum Disorder (ASD) to find out the characteristics of students and the ability of students writing.

3. Findings and Discussion

3.1 Potential and Problem Analysis

Research and data collection was carried out through observation and interviews with classroom teachers, shadow teachers, and autistic students at Lemah Putro 1 Primary School in Sidoarjo, as one of the regular schools that used the inclusion system. The purpose of the observation and interview was to get initial information about the condition of autistic students. Observation is done by observing autistic students while learning to write. While the interviews were conducted with classroom teachers and shadow teachers regarding the characteristics of autistic students, the obstacles experienced by students in the learning process, and the media that had been used to support the writing of the beginning of autistic children. From the assessment results through observation and interviews, there were some characteristics of autistic students, including: (1) not being able to hold a pencil properly, (2) pencil pressure in the book is too large, (3) inconsistent writing, (4) prefers gadget media, (4) cannot combine consonants and vowels.

Based on the results of the assessment through observation, interviews, and knowing the characteristics of the needs of autistic students, the researcher can formulate the problem and find the solution taken, namely developing visual media based on ICT to improve the beginning writing of autistic students.

3.2 Data Collection

After obtaining the assessment results and the characteristics of students' needs, the researchers examined several previous studies in order to develop an visual media based on ICT design that was in accordance with the needs of autistic students, and could assist teachers in writing learning for autistic children. The Design of visual media based on ICT includes several aspects in it, such as images, letters, alphabet, text, and painting.

3.3 Product Design

The next stage after data collection, namely the product design stage. This product design includes the preparation of overall visual media based on ICT content. The development stage of visual media based on ICT product design includes: (1) formulating material content in visual media based on ICT design, build upon on student assessment and the results of interviews with teachers at Lemah Putro 1 Sidoarjo of Elementary School related to Indonesian subjects on initial writing, (2) planning of visual media based on ICT design and concepts, (3) collect materials and materials needed to complete the content of visual media based on ICT designs in the form of fonts used, and images, (4) provision of visual media design development tools and materials , in the form of a set of laptops accompanied by supporting applications for visual media based on ICT design, and (5) implementation of product design development. The process of developing visual media based on ICT through several stages, including:

1. Cover Design, Shown in Figure 1.



Figure 1. Cover Design

2. Media menu design, shown in Figure 2.



Figure 2. Media Menu Design

3. The Design of media contents on the alphabetical menu, shown in figure 3.

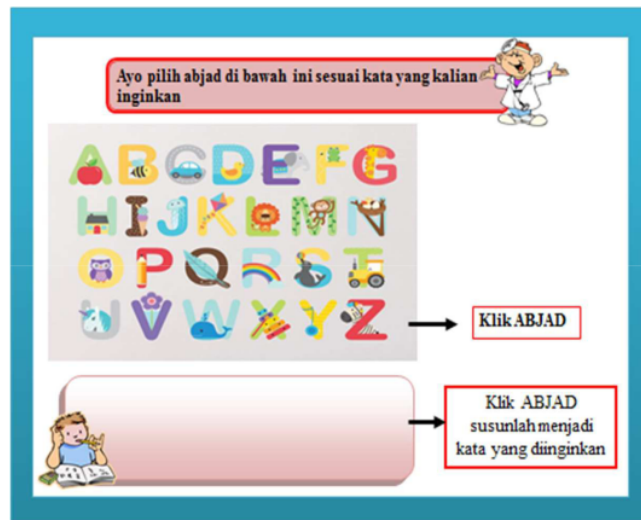


Figure 3. Design Media Contents in the Alphabetical Menu

4. Design of sample media contents on the painting menu, shown in Figure 4.

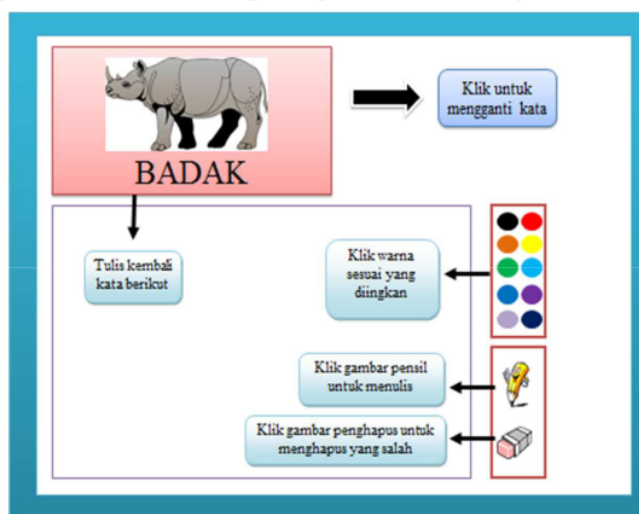


Figure 4. The Design of Sample Media Contents on the Painting Menu

There are steps to use visual media based on ICT design: (1) click the start button, the alphabet and painting image menu will appear, (2) if the student chooses to click the alphabetical picture menu, all alphabet letters will appear. If students want to write the word "K-U-D-A", then students must click on one by one of the letters that form KUDA, so that the letters that form KUDA will be arranged themselves in the box provided, (3) if students choose click the painting menu, then a word will appear along with an animated picture, (4) then the student must rewrite the word that has appeared on the screen, such as the word "BADAK", (5) so that students can write the word "BADAK", then students must click the pencil drawing menu, if the student want to change the color of the writing, They can click on the various color menus that have been provided, (6) if there is a wrong letter when writing, students can click the eraser image menu that has been provided, (7) when the word "BADAK" is complete, The student can continue another word by clicking on the arrow image next to the word "BADAK".

4. Conclusion

The design of visual media based on ICT were developed to overcome the difficulties of writing the beginning of children with autistic disorders. The design forms in it are the alphabet and painting letters menu. If the child chooses the alphabet letter menu, the letters A to Z will appear, the letters will be selected or clicked so that the words are formed according to the child's wishes. And if you choose the painting menu, an animated word and picture will appear, the child must rewrite the word using the painting menu provided in the application, so that the autistic child does not feel bored while learning, but will feel like playing.

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