

Designing Educational Books for Children with Down Syndrome

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ABSTRACT

Down syndrome is one of the common genetic disorders. It is experienced by children born with an abnormal number of chromosomes which causes mental retardation and characteristic physical characteristics. Currently in Indonesia, many schools have been established that are specifically provided for children with Down syndrome, one of which is SLB Puspa Melati. SLB Puspa Melati is located in the Tepus area, precisely in Pudak Hamlet, Gunungkidul Regency, D.I. Yogyakarta Province. The learning activities carried out at SLB Puspa Melati Tepus are continuously explored, this is as done in July 2017 where SLB Puspa Melati invited several graffiti actors (including writers) to draw with the students of SLB Puspa Melati, especially in drawing letters which were then assembled into the names of each student. This activity then inspired the author to design an educational book for down syndrome children, especially for students of SLB Puspa Melati. This design includes designing the fontstyle (variety of letters) that the author created, inspired by the author's fontstyle graffiti consisting of alphabets A to Z and numbers 0 to 9. The entire alphabet and numbers were designed using connecting lines as a tool for students to draw and identify letters and numbers after they were bolded.

Keywords: design, educational books, children, down syndrome

INTRODUCTION

Down syndrome is one of the common genetic disorders. This is experienced by children born with an abnormal number of chromosomes which causes mental retardation and characteristic physical characteristics (Selikowitz, 2008). Although not all children with Down syndrome have the same characteristics and symptoms, they need more treatment and guidance than children in general. The development of children with Down syndrome in various aspects requires a process and time, and is lived gradually according to their respective abilities. The word syndrome itself is used to denote a collection of clinical symptoms. So that the definition of Down syndrome is a disorder that is a collection of certain clinical symptoms found by Dr. Longdon Down (Fadhli, 2010). Down syndrome is a genetic disease because the disorder is found in the genetic material but not an inherited disorder (Selikowitz, 2008).

Another feature of people with Down syndrome is mental retardation or mental retardation. Mangunsong (2009) mentioned that professionals classify children with Down syndrome based on the severity of the problem. This classification is made based on the level of intelligence or IQ score, namely: (1) Mild mental retardation (mild) (IQ 55-70); (2) Moderate mental retardation (IQ 40-55); (3) Severe mental retardation (IQ 25-40); and Profound mental retardation (IQ below 25). This retardation causes people with Down syndrome to experience deficiencies in various adaptive skills such as communication and language skills, social, academic, self-care, and domestic life, organizing or directing themselves, as well as work skills (Davidson and Neale, 1998).

Nevertheless, through proper education, people with Down syndrome can develop their abilities to the fullest (Selikowitz, 2008). Currently in Indonesia, many schools have been established that are specifically provided for children with down syndrome, one of which is SLB Puspa Melati. SLB Puspa Melati is located in the Tepus area, precisely in Puduk Hamlet, Gunungkidul Regency, D.I. Yogyakarta Province. SLB Puspa Melati is under the auspices of the Puspa Melati Foundation which was established on June 4, 2012. SLB Puspa Melati organizes structured and tiered education that is specially arranged for students who are included in the children with special needs category. The establishment of SLB Puspa Melati itself seeks to create children with special needs who are independent so that they are able to socialize in the community. The main task faced by a person with a disability (including Down syndrome) is to achieve independence (Cohen, 1977). To be able to realize this vision, SLB Puspa Melati applies a variety of learning activities for its students. One of these activities includes using visual media such as drawing to stimulate the learning development of his students.

The learning activities carried out also continue to be explored, this is as done in July 2017 where SLB Puspa Melati invited several graffiti actors (including writers) to draw with the students of SLB Puspa Melati, especially in drawing letters which were then assembled into the names of each student. The limitations of the students of SLB Puspa Melati did not dampen their enthusiasm to draw these letters. Based on the expression of the teaching staff of SLB Puspa Melati, students are easier to describe letters by using the help of connecting lines as outlines or outlines of letter objects. For this reason, in this activity, the author and other graffiti actors helped the students to draw letters by creating connecting lines on each letter that became the name of each student. After the lines are drawn straight and form the name of each disciple, the letters are then colored using dyes such as markers, colored pencils, and crayons.

Departing from this activity, it then inspired the author to design an educational book for children with down syndrome, especially for students of SLB Puspa Melati. This design includes designing the fontstyle (variety of letters) that the author created, inspired by the author's fontstyle graffiti consisting of alphabets A to Z and numbers 0 to 9. The entire alphabet and numbers were designed using connecting lines as a tool for students to draw and identify letters and numbers after they were bolded.

The functions of the learning media themselves are: (1) To help facilitate learning for students and help facilitate teaching for teachers; (2) Provide a more real experience; (3) Attract greater student attention; (4) All students' senses can be activated; (5) Attract students' attention and interest in learning (Asnawir and Usman, 2002: 24). According to Gagne and Briggs, learning media includes tools that are physically used to convey the content of learning materials, one of which consists of books (Arsyad, 2002: 4).

This is the author's intention to design an educational book for SLB Puspa Melati which is inspired by graffiti. Graffiti is the plural form of the word "graffito" which means a picture or stroke on a wall or stroke. This term is used for writing or drawings that are doodled, painted or inscribed on the wall (Susanto, 2011:161). In the exploration, the graffiti actor will create his own type of font or letter. Where the font itself is part of the typography. Typography is the use of letterforms to visually communicate a spoken language (Klimchuk:88).

Based on the understanding that art (in this case including graffiti), can be a medium to simply play with materials, media, and techniques. Or art itself can exploratorily look for various possible forms or meanings (Marianto, 2011:9). In addition, some factors that make it difficult for children with special needs or children who have learning difficulties are in the development of motor and perceptual skills (Abdurrahman, 2010: 143). The design that the author will raise departs from the focus of the problem of how the visualization of an educational book for children with down syndrome is SLB Puspa Melati which contains fontstyle graffiti from the alphabet A-Z and the numbers 0-9

METHODS

The creation method includes determining the problem of creation and then making observations related to the problem of creation. After that, the formulation of the design was found, analyzing the data, and carrying out the design which then became the form of the work.

RESULTS

Concept of Creation

The concept of creation in the author's Final Project work is to design an educational book for children with Down syndrome, especially for students of SLB Puspa Melati. This design includes designing a fontstyle (variety of letters) that the author created inspired by the author's fontstyle graffiti consisting of alphabetical 'A' to 'Z' and numbers '0' to '9'. The entire alphabet and numbers were designed using connecting lines as a tool for students to draw and identify letters and numbers after they were bolded. In the process of this creation, the author will create an educational book entitled "Puspa Melati". The book "Puspa Melati" consists of four series, where each title of this book becomes "Puspa Melati" series 1, "Puspa Melati" series 2, "Puspa Melati" series 3 and "Puspa Melati" series 4. Each of the "Puspa Melati" book series will contain the author's own fontstyle design. The entirety of the "Puspa Melati" series 1 to Series 4 books can later be colored by the students of SLB Puspa Melati using dye after the entire dotted line of each letter and number in the book has been bolded.

"Puspa Melati" Series 1

The educational book "Puspa Melati" Series 1 has content in which there is a dotted line which later after the broken lines are bolded will form a letter or alphabet. Each page contains one letter or alphabet. The letter 'A' will be on page 1, the letter 'B' will be on page 2, and so on until the letter 'Z'. All letters that the author designed are included in the category of decorative fonts and have the character of majuscule or uppercase (capital / large). At the bottom right of the layout of each page will be given a projection or illustration of the letter shape after being bolded later.

"Puspa Melati" Series 2

The educational book "Puspa Melati" Series 2 has content in which there is a dotted line which later after the broken lines are bolded will form a letter or alphabet. Each page contains one letter or alphabet. The letter 'a' will be on page 1, the letter 'b' will be on page 2, and so on until the letter 'z'. All the letters that the author designed in the book "Puspa Melati" Series 2 are included in the category of decorative letters and have a minuscule or lowercase (small) character. At the bottom of the layout of each page will be given a projection or illustration of the letter shape after being bolded later.

"Puspa Melati" Series 3

The educational book "Puspa Melati" Series 3 has content in which there is a dotted line which later after the broken lines are bolded will form a number. Each page contains one number. The number '0' will be on page 1, the number '1' will be on page 2, and so on until the number '9'. All the numbers that the author designed in the book "Puspa Melati" Series 4 belong to the category of decorative letters. At the bottom of the layout of each page will be given a projection or illustration of the number shape after being bolded later.

"Puspa Melati" Series 4

The educational book "Puspa Melati" Series 3 has content where each page contains one letter or alphabet. The letter 'A' will be on page 1, the letter 'B' will be on page 2, and so on until the letter 'Z'. All the letters designed by the author in the book "Puspa Melati" Series 3 are included in the category of decorative letters and have the character of majuscule or uppercase (capital / large). In the book "Puspa Melati" Series 3, each letter character is given a decoration ornament (decoration) on each letter, so that each letter seems to form one specific character.

Design

Material

The materials or materials used in the "Puspa Melati" books Series 1 to Series 4 include Ivory 310 paper as the cover of the book and BC paper as the paper used for the book pages. The consideration for the use of Ivory 310 paper material as a book cover lies in the thickness and texture of the paper that is appropriately used as a book cover. Meanwhile, BC paper is used as material for book pages, starting from the consideration of the right paper texture used for coloring and drawing.

Technique

Sketches from the contents of the Series 1 to Series 4 "Puspa Melati" books will be digitally executed using the CorelDraw app. Digitization is needed so that each letter that was originally in JPEG format becomes a vector format so that it can be arranged and printed digitally. In the end, the entire content of the book will be printed with digital printing techniques, which are then bound so that the book looks neat and not easily damaged.

Size

The entire book "Puspa Melati" Series 1 to Series 4 will be realized in portrait (vertical) format into a size of A4 or 21 cm x 29.7 cm. The consideration of using this format and size is in the level of comfort and readability that makes it easier for children to interact and identify each content in the book "Puspa Melati" Series 1 to Series 4.

Embodiment of Concept

Stage One: Sketching

The initial stage in the embodiment of the concept is to sketch numbers, uppercase letters, lowercase letters, and decorative letters. The purpose of making this sketch is, among others, as a step to design a roughly visual composition.



Figure 1. Sketches of font designs on the book "Puspa Melati" Series 1, 2, 3, and 4.

Stage Two: Digitization

The second stage of the series of process of realizing the concept is to digitize based on existing sketches. The digitization process is carried out with two applications. The first application is the process of digitizing sketches of letters and numbers that have contours (firm lines) for the Puspa Melati series 1, 2, and 4 books. The second application is the process of digitizing sketches into letters and numbers into dotted lines for the Puspa Melati Series 1, 2, and 4 books. Meanwhile, the digitization process for the Puspa Melati Series 3 book is carried out by scanning images from sketches which are then digitized.



Figure 2. The process of digitizing font design in the book “Puspa Melati” Series 1, 2, 3, and 4.

Stage Three: Layout Setting

The third stage after the digitization process is to set the layout of each letter and number with A4 size settings. Each of the letters and numbers is in one A4 sheet. The layout composition of each letter and number in one sheet is a letter with a dotted line at the top while letters and numbers with firm lines are at the bottom of the layout for the Puspa Melati series 1, 2, and 4 books. As for the Puspa Melati Series 3 book, each letter is in the middle of the layout.

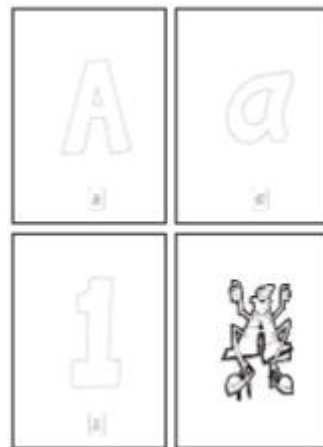


Figure 3. The process of arranging the layout of fonts on the book “Puspa Melati” Series 1, 2, 3, and 4.

Stage Four: Print and Bind

The fourth stage or the final stage of the entire process of realizing the concept is to print all the results of the design and bind them into a book form.



Figure 4. Final book.

CONCLUSION

The design of educational books for down syndrome children at SLB Puspa Melati entitled "Puspa Melati" Series 1, "Puspa Melati" Series 2, "Puspa Melati" Series 3 and "Puspa Melati" Series 4 was selected based on the author's identification and experience when plunging directly into SLB Puspa Melati. For the teaching team and personal authors, educational books such as the author created are able to stimulate the development of children of SLB Puspa Melati students who are affected by Down syndrome. Although the things done by this author are still very small in the process of developing the level of independence of each child, it can be a capital for the development of each child's independence at SLB Puspa Melati.

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