

VISUAL LANGUAGE DESIGN AS A NEW MEDIA FOR INCLUSIVE EDUCATION FOR STUDENTS WITH AUTISM SPECTRUM DISORDER (ASD)

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ABSTRACT

The development of educational institutions in Indonesia and globally is currently facing the challenge of how to answer the needs of students diagnosed with Autism Spectrum Disorder (ASD) in receiving and understanding lecture materials, specifically designed in new media needs to be designed to facilitate and support the learning activities of ASD's students and the goal of inclusive and sustainable education can be achieved. A visual research method was carried out with 4 stages of analysis, namely the image aspect, technical aspect, maker aspect and viewer aspect, then supported by statements from experts in designing the right visual language to convey the syllabus of the Digital Design Production (DDP) course. The result is that the right visual language will help students with ASD receive the message conveyed during the learning activities.

Keywords: Inclusive Education, Sustainable Education, Visual Communication Design, New Media for Autism Education, Autism Spectrum Disorder

A.INTRODUCTION

The development of educational institutions in Indonesia has developed since independence until now. Several important aspects in the development of educational institutions today include educational policies that discuss curriculum reform that adapts to the needs of the times. The Ministry of Education, Culture, Research and Technology (Kemendikbudristek) launched Merdeka Belajar with the topic of Transformation of National Standards and Higher Education Accreditation. This program is based on the Regulation of the Minister of Education, Culture, Research and Technology (Permendikbudristek) Number 53 of 2023 concerning the Assurance of the Quality of Higher Education, and this policy is supported by the academic community throughout Indonesia. The goal

is that universities will have more room for differentiation, become more adaptive and focus on improving the quality of the Tridharma of Higher Education (Ministry of Education, Culture, 2023).

Related to Permendikbudristek Number 53 of 2023, in Permendikbudristek Number 48 of 2023, a policy is enforced that formal schools accommodate and provide facilities for the needs of students with disabilities, curriculum adjustments for students with disabilities (Ministry of Education, Culture, 2023).

As a commitment to advancing quality education in Indonesia, based on the policy of the Ministry of Education, Culture, Research and Technology, Bina Nusantara University through the Merdeka Belajar program, for the Digital Design Production (DDP) course, conducted a special analysis for students diagnosed with Autism Spectrum Disorder (ASD). This course was chosen because it was found that students with ASD were interested in choosing the Merdeka Belajar program with the DDP course to study for one semester.

Human intelligence is identical to academic ability which is manifested in grades during the educational realm. Howard Gardner in his book "Frames of Mind: The Theory of Multiple Intelligences" in 1983, stated that there are 9 types of intelligence in humans that are very likely to be mastered if trained properly. This intelligence cannot only be measured by academic grades, because it has different levels, every human being has multiple intelligences such as intellectual and emotional intelligence (Gardner, 2011).

ASD is a developmental disorder caused by differences in the brain, individuals with ASD may behave, communicate, interact and learn differently from most other people. There is no difference in appearance but have varying abilities. Some have advanced conversational skills, while others are still found to lack non-verbal skills. Some people with ASD need a lot of help in daily life, others can work and live with little help or support (Government, 2024).

Individuals with ASD have different communication or social interaction behaviors from people in general, such as not making eye contact when communicating, rarely sharing emotions or

interests in an object or activity, no response, no special attention, having difficulty with back and forth conversations, talking at length on favorite topics without realizing that others are not interested. In addition, there were facial expressions, voices, flat body movements and repetition of certain behaviors and many more from the level of diagnosis of the person's ASD status (NI, 2023).

This study explains how the results will have a positive impact in answering the Sustainable Development Goals (SDG's) points on Quality Education, fulfilling the Indonesian government's global commitment in an effort to provide welfare to the community through Education.

This global target for 2030 was declared by both developed and developing countries at the United Nations (UN) General Assembly in September 2015 (Bappenas.go.id, 2018). In the world of education, standardization and conformity assessment are priorities that must be pursued to become a World Class University (Nasional, 2021).

B. IMPLEMENTATION AND METHODS

The implementation or activity of this research began with a questionnaire involving 54 students from the Visual Communication Design department and 4 students with an ASD diagnosis to see the results of the first stage of the methodology used.

Table 1. Results of the Imagery Aspect Questionnaire for 54 Students without ASD and 4 Students with ASD Diagnosis at the Faculty or School of Design, Bina Nusantara University in Even Semester 2023/2024

No.	Imagery Aspect	Students without ASD diagnosis	Students with ASD diagnosis
1	Design Content Composition: <ul style="list-style-type: none"> • Left-Aligned • Center-Aligned • Right-Aligned • Irregular 	42,6% Center-Aligned. 35,2% Left-Aligned. 20,4% Right-Aligned.	25% Left-Aligned. 75% Right-Aligned.
2	Layout: <ul style="list-style-type: none"> • Mondrian • Circus • Multi Panel • Silhouette • Big-Type • Alphabet • Copy Heavy • Frame 	14,8% Mondrian 14,8% Silhouette 14,8% Alphabet Inspired 11,1% Circus 9,3% Copy Heavy 9,3% Picture Window 7,4% Big-Type 7,4% Multi Panel 7,4% Frame	25% Frame 25% Multi Panel 25% Copy Heavy 25% Silhouette

	<ul style="list-style-type: none"> • Picture Window • Rebus 	3,7% Rebus	
3	Penekanan Alur Baca: <ul style="list-style-type: none"> • Symmetry • Assymetry • Emphasis • Rhythm • Unity 	48,1% Symmetry. 20,4% Unity. 14,8% Rhythm. 9,3% Assymetry. 7,4% Emphasis.	25% Rhythm. 75% Unity.
4	Typeface: <ul style="list-style-type: none"> • Typeface with Serifs (clearly defined Serifs, Bowl, Ear, Tail, Terminal, Aperture, Link/Neck) • Typeface without Serifs (Serifs, Bowl, Ear, Tail, Terminal, Aperture, Link/Neck are not prominent/blocking) 	63% Without Serif. 37% With Serif.	100% With Serif.
5	Illustration Styles: <ul style="list-style-type: none"> • Naturalistic • Decorative • Cartoon • Caricature • Pictorial • Textbook • Fantasy 	31,5% Cartoon 24,1% Fantasy 14,8% Naturalistic 14,8% Decorative 11,1% Pictorial 1,9% Caricature 1,9% Textbook	25% Naturalistic 25% Textbook. 25% Pictorial 25% Fantasy
6	Visual Characteristic: <ul style="list-style-type: none"> • Simple • Quite Detailed • Very Detailed 	81,5% Simple. 18,5% Quite Detailed	100% Simple

The methodology namely the Imagery Aspect, then continued with the Technical Aspect, Maker Aspect and Audience Aspect which were supported by statements from the results of interviews with experts from the field of Clinical Psychology (Soewardikoen, 2013).

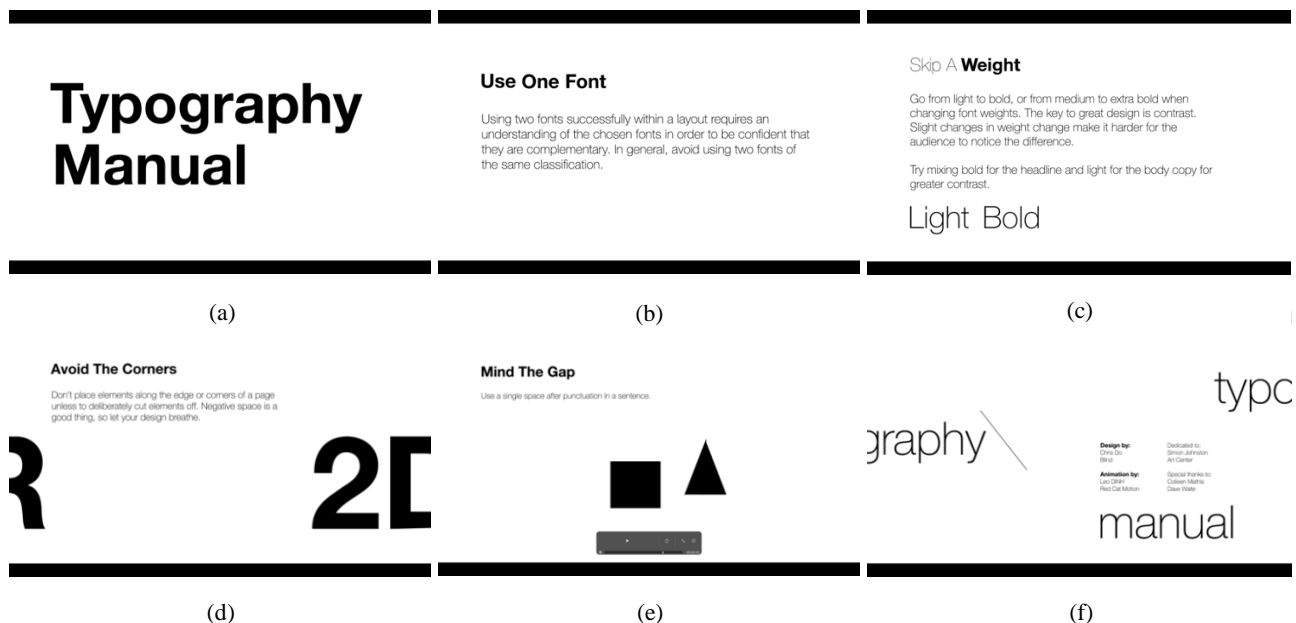
From the results of the table above, it can be concluded that the Technical Aspect of visual language design cannot be carried out with the same standards, because of the different interests between students without or with ASD diagnoses. There needs to be an appropriate visual language design to be used in conveying messages visually.

The basis of the Maker Aspect refers to data from the World Health Organization (WHO) in 2018, stating that one in 160 children has ASD. Then from data from the Indonesian Central Statistics Agency, in Indonesia there are data of around 270.2 million with a comparison of children with ASD of around 3.2 million children (Indiyana & Utami, 2021).

Meanwhile, from the data held by Bina Nusantara University, summarized by the Student Advisory and Support Center (SASC), it was noted that of all disabled students in the odd semester period of 2023/2024, there were 38.6% of the total 45,506 active students. And in the category of mental developmental disabilities, it was 9.8% with ASD diagnoses spread across different faculties.

In the Audience Aspect, a trial was conducted by taking a sample of animation available on the Youtube platform with the title "Typography Tutorial: 10 Rules To Help You Rule Type" by The Futur, as a comparison with animation that has been specially designed with visual language that has been adjusted from the results of the questionnaire in the Imagery Aspect on the results of the interests of students with ASD diagnoses.

This was done to see how information is received and processed, whether there is a mechanism for regulating experience and expression or emotion when the subject receives a stimulus, whether emotional regulation occurs through understanding and is stored in long-term memory (Widjanarko, Kartika, & Sasongko, 2021), and the results are as follows (figures 1):



Figures 1. The subject receives a stimulus. (a) Title of the material in the animated media in the comparative example. (b) Placement of paragraphs as the message conveyed. (c) More complete information with concise message writing. (d) Visual cuts of the material presented on the left and right. (e) Use of visuals to convey irregular messages. (f) Irregular typographic layout pieces.

And the following are the results of the adjustments that have become the standard for delivering messages using visual language that has been specifically designed for students diagnosed with ASD (figures 2):

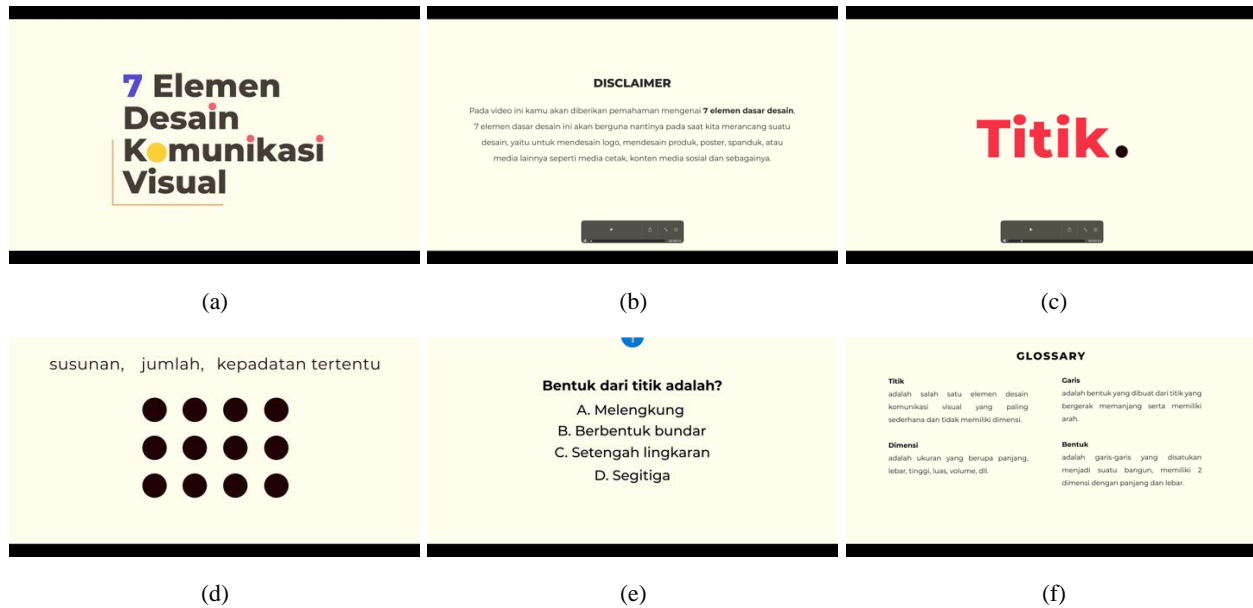


Figure 2. The standard for delivering messages. (a) Title with a calm and plain background color. (b) A warning message needs to be conveyed for visual purposes. (c) The visual is presented directly with center alignment. (d) Supporting visuals remain in the center. (e) Quizzes need to be held for the process of recalling memory. (f) Glossary information needs to be provided as a reminder.

C. RESULTS AND DISCUSSION

The result of the implementation is how the visual language for individuals without ASD with ASD diagnosis is very different. Technical aspects in visual communication design using new media need to be taken into account from the basic visual elements, starting from the background using calm colors to attract focus that does not interfere with the retina of the eyes of ASD sufferers, the selection of fonts without anchors such as Montserrat with a size that can be read in a few seconds, the disclaimer section to remind them of why they are studying the material to draw a straight line forward for their memory, placement of titles in each segment of the material with different colors according to the category of the material presented, all visual elements are placed in the center to emphasize vision and focus, quizzes at the end of the visual material provide a process of recalling memory, and closed with a glossary that explains again for each point of the message delivered.

D. CONCLUSION

Visual language in new media needs to be taken into account for its users, especially for those diagnosed with ASD. The standards used are not the same as for individuals without an ASD diagnosis. The speed of time in conveying visual messages is very important, considering that individuals with ASD have a faster level of boredom with something. Maintaining their focus with visual games placed in the middle of the media. Although in the questionnaire results there are some parts that are not applied, because they consider that they must follow the rules that apply in general provisions in society, such as in terms of the taste of music that is preferred is fast-paced with lyrics, this cannot be applied, because it will break the focus towards their subjective tastes and will not focus on the material. So with the right calculations, the visual language will be right on target for use in delivering lecture material for students diagnosed with ASD.

Acknowledgments

We would like to express our gratitude for the attention and support provided by BINUS Research, New Media and Animation Department (School of Design), Disabilities Student Services from Student Support and Advisory Center (Student Affairs), and the Student Communication team namely Jessica Lynn Wibowo, Timotius Rubby Guntheres, Victor Chandra, Athirah Nadiah Valeri, Monica Valentina, Fransiscus Sachio Alfonso, and Mohammad Taufiq (Made by EMTE) for the illustration artworks that can support us so that this research can be conveyed well to students diagnosed with Autism Spectrum Disorder (ASD).

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