Face Recognition Images in Middle Adolescence

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Abstract— **Visual perception is a human ability to be able to interpret information captured by the eye. However, for more than half a century, neuropsychologists have recognized the classic Mooney Face Test. The Mooney face was developed by Craig Mooney to study perceptual in children. Craig Mooney created a set of 40 human face stimuli, which consists of several smooth black and white round patches. The method used in the research is quantitative with data collection techniques is accidental sampling. This study uses 15 images consisting of images that are upright, inverted, tilted to the left, tilted to the right, and scrambled. The results obtained from this study are that various mooney face do not affect visual perception in middle adolescents.**

*Keywords***:** *visual perception, face recognition, mooney image*

I. INTRODUCTION

Face processing includes complex sequence of stages, including visual feature extraction, configuration analysis, matching configurations with existing memory, and subsequent recognition of known faces [1]. The face capture our attention. Humans are able to infiltrate toward the face in just 100 ms, whereas it is difficult to move away from faces [2]. The face is also detected efficiently in visual search tasks [3] Williams et al., 2005; bnd. [4] Doi and Ueda A person's ability to recognize their faces has existed since the beginning of development, but facing a new memory experience is at a later stage of development. According to Diamond, Carrey & Back, facial memory has been shown to increase rapidly between the ages of 6 and 10 years and then disappear, then rise again later during adolescence. Other studies have shown linear improvement between childhood and adulthood. are gender differences in facial memory. Adult females generally behave better than males in facial memory and some studies have found the superiority of females in facial memory throughout the teenage age range as well. There is disagreement about when facial memory becomes mature [5].

Adolescence is a time of dramatic physical, cognitive, emotional, behavioral, and social changes. We argue that the surge of steroidal hormones during the onset of puberty is likely to instigate and causally influence the behavioral and neural basis of face processing, and social information processing more generally, in adolescence For example, we hypothesize that the peer-focused developmental tasks of adolescence will drive attributions and preferences for attractiveness in faces as well as biases in recognition memory for peer, or own- age, faces. We also predict that the gonadal hormones released during adolescence have a fundamental impact on the reorganization of neural circuitry supporting face processing [6]. Perception is the final process of observation beginning with the sensing process, which is the process of receiving a stimulus through the sensory device which is then passed on to the brain and it is only then that the individual realizes something that is perceived. According to Toha [7], factors that can influence a person's perception are internal factors and external factors. Internal factors can be in the form of feelings, attitudes, prejudices, attention (focus) of someone towards the surrounding environment. While external factors can be in the form of family background, information obtained from the surrounding environment and intensity and size of an object. Visual perception is a perception that involves the senses of sight or eyes. Visual perception is a very important sensing system because it represents the other sense perception systems in understanding the perception process in general (Lahey, 2004). According to Hartini [8], the main problem that is often faced by a person in performing visual perception is what people see, not just the translation of the retinal stimulus. Rather the visual system absorbs information from the environment and develops for the purpose of detecting and using information from reflected light.

Many types of tests have been developed to measure various aspects of facial processing [9]. However, for more than half a century, neuropsychologists have recognized the classic Mooney Face Test. The Mooney face was developed by Craig Mooney to study perceptual in children. Craig Mooney created a set of 40 human face stimuli, which consists of several smooth black and white round patches. Such stimulation can take several seconds to be recognize at first, but when the stimulus is presented upside down, it is often not

recognized as a face, even if immediately recognized as a face when displayed upright, revealing the characteristic of holistic facial processing Schwiedrzik, Melloni, & Schurger [11]. The effects of visual image-level properties, such as spatial frequency and skin color, can also affect the efficiency of face detection [12] For example, VanRullen [4] manipulates the spectrum of face image amplitude by replacing it with a car's amplitude spectrum and destroying search efficiency for face, indicating that the face amplitude spectrum underlies pre-attention processing [12] Mooney faces are often used in cognitive psychology and neuroscience experiments by displaying ways to induce variable perceptions with constant visuo-spatial characteristics in humans and other animals Schwiedrzik, Melloni and Schurger [11]. According to Goold and Meng [12], using Mooney images also allows us to examine how previous experiences can modulate the effects of core information and individual features in fast face detection. Non-face objects, such as fruits, houses, and tools, can also be given this way. Stimulation is made by blurring the grayscale image first, and then increasing the contrast by 100%, so that only black and white spots remain Schwiedrzik, Melloni and Schurger [11]. The purpose of this study was to determine whether there were differences in the results of visual perception of the images displayed on the screen consisting of images perpendicular, upside down, tilted to the left and tilted to the right between 3 groups (age 16 years. 17 years and 18 years) .

II. METHODS

A. Respondent

Research respondents were 10 people aged 16 to 18 years. Respondents were selected based on the characteristics that were in accordance with the objectives of the study by accidental sampling. The selected respondents have normal visual abilities in seeing an object.

B. Research Tool

Researchers used a powerpoint that contained Mooney Face Test images. The images on the Mooney Face Test are black and white compositions, the researchers get Mooney Face Test images from several sources and there are also pictures made by researchers adjusting to the Mooney Face Test tool before. In the powerpoint the group has collated, there are 15 images containing 3 images without faces and 12 images that have faces. The displayed image consists of an image that is upright, upside down, tilted to the left and tilted to the right and no face. Each image displayed has its own time of 15 seconds.

Figure 1. Test sample of Mooney Face

C. Research Procedure

The research used quantitative methods. Researchers met with respondents who had been selected and willing to be at a place that had been adjusted to the agreement. The study was conducted on one by one respondent, not all at once. The place chosen all has the same atmosphere that is rather crowded but still conducive. Before starting the research, the researcher explained how this research was conducted and the purpose of this research to respondent, then the respondent were shown a laptop with powerpoint containing Mooney Face Test, besides that in the powerpoint there is also a test instruction given clearly. After reading and understanding with the test instructions, the respondent will give an answer there is (face) or there is no (face) to the 15 questions given. The researcher has the duty to record the answers and give points to the respondent's answer, if the answer is correct the respondent will get 1 point and for the wrong answer get 0 point.

D. Data Analysis

Researchers used SPSS to calculate the average and standard deviation of the data obtained, with the results of the average and standard deviation, the researchers wanted to analyze how the description of facial recognition in people aged 16 to 18 years.

E. Results and Discussion

Descriptive Statistics

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Table 1. Result test of Mooney Face

Using SPSS can be known the average obtained is 13.70 with SD 1.337, seen from the mean value shows that with the various forms of Mooney Face does not affect the visual perception of the subject and in the age range of 16-18 years facial recognition ability is still very good and no major changes occur. Of the 15 questions given, the average subject can answer 13 questions correctly, while the lowest subject score can only answer 12 questions and the highest answer 15 questions correctly. Therefore, In the age range of 16-18 years, it is included in the criteria of middle adolescents according to Thalib [13] where in general, the visual perception is still relatively good and does not show a decrease in facial recognition abilities.

In other word, they are still in development, where facial recognition can still be practiced.

F. Item Analysis

This study uses 5 types of Mooney Face (upright, tilted to the right, tilted to the left, inverted, and scrambled) which each type consists of 3 images with a total of 15 images. Each type of Mooney Face is displayed in a random order, such as (upright - tilted to the right - tilted to the left - scrambled). From the results of the study showed that there were several items that had a fairly high level of difficulty indicated by the many subjects who answered incorrectly. As with items with scrambled and inverted type, 5 out of 10 subjects studied answered incorrectly which means that in the scrambled type there were 5 subjects who found the face in the displayed image while in the reverse type there were 5 subjects who found no face. In the upright type there are only 3 subjects who answered incorrectly, while for the right-angled type only 1 subject answered incorrectly from 10 research subjects. For the left-angled type there is no evidence of difficulty from the absence of a subject who answered incorrectly.

III. DISCUSSION

Based on research that has been conducted on subjects using the mooney face method to see visual perception in middle adolescents aged 16 to 18 years, it appears that there is no significant difference in visual perception in adolescents age 16, 17 and 18 years. The answers given by the subjects at the time of the study were not all the same, but the true and false numbers were not significantly different. In accordance with the theory given by Toha [7], the factors that can influence are internal factors and external factors. Internal factors can contain a person's feelings, attitudes, prejudices, attention (focus) on the surrounding environment, And also external factors can shape family backgrounds, and the information that comes from the environment.Thalib's said [13] where in general the child's visual perception was still relatively good and did not show a decrease of vision. In this research subjects were taken at an age range that was not too far away because it was going through the same phase of life,so that the influence on perception such as feeling, attitude, prejudice and attention, was in the same stage. A place that researchhas been held is also similar, crowded places such as schools and malls so the attention (focus) were given are similar.

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