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Differences of Visual Attention to Memes: An Eye Tracking Study

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Abstract. Nowadays, memes are used as funny yet effective approach to send the messages for people. The growth of internet and digital media in recent years make memes easier to spread around the world. There are many studies about the perception to memes among different ages. However, it is still unclear the visual attention of people to memes. To solve the problem, human eye tracker could be used as objective and bias free technology. In this study, millennials and non-millennials participants were shown many memes image in random order. Participant's eye movements were recorded using human eye tracker to measure visual attention. Following eye tracking, participants completed a modified questionnaire to measure the perceptions of memes.

Keywords*. Meme, visual aatention, technology*

1. INTRODUCTION

The term of meme was first introduced by Richard Dawkins in his book "The Selfish Gene"[1] which is defined and known as a cultural transmission unit capable of spreading and imitating like a gene in line with what is conveyed [2]. The term of meme on the internet that we know today is an adaptation from what Richard Dawnkins said in his book but it has many fundamental differences in the definition behind memes on the internet. Memes on the internet are better known as words, emoticons, videos, or gifs, the most common forms are images with overlapping writing[3]. The current technological advances contribute to popularity of memes in internet[4], especially for millennials who are active users of social media.

The presence of memes as a phenomenon has certainly attracted the attention of academicians. For example, why people post and blast memes , memes on social media as portrait of people's life, how memes growth in a community[5], the symbolic value of memes, and many more. However, although there are many studies about memes, it is still unclear the perceptions of memes among people objectively. In this study, we analyzed the visual attention of millennial and non-millennial on memes by using human eye tracker.

2. METHOD

In this study we collected HET data using 10 participants consisting of millennials (N = 5) and non-millennials (N = 5). The participant is a person who has no visual problem, color blind, wear contact lenses and glasses.

Table 1. Layout of memes used in the study.

Image condition		N
Memes	Meme all social issues	8
Blank	*Blank space* , and a red dot	9

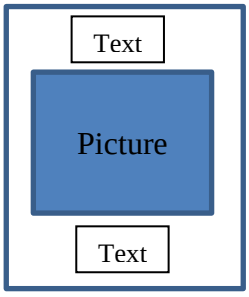
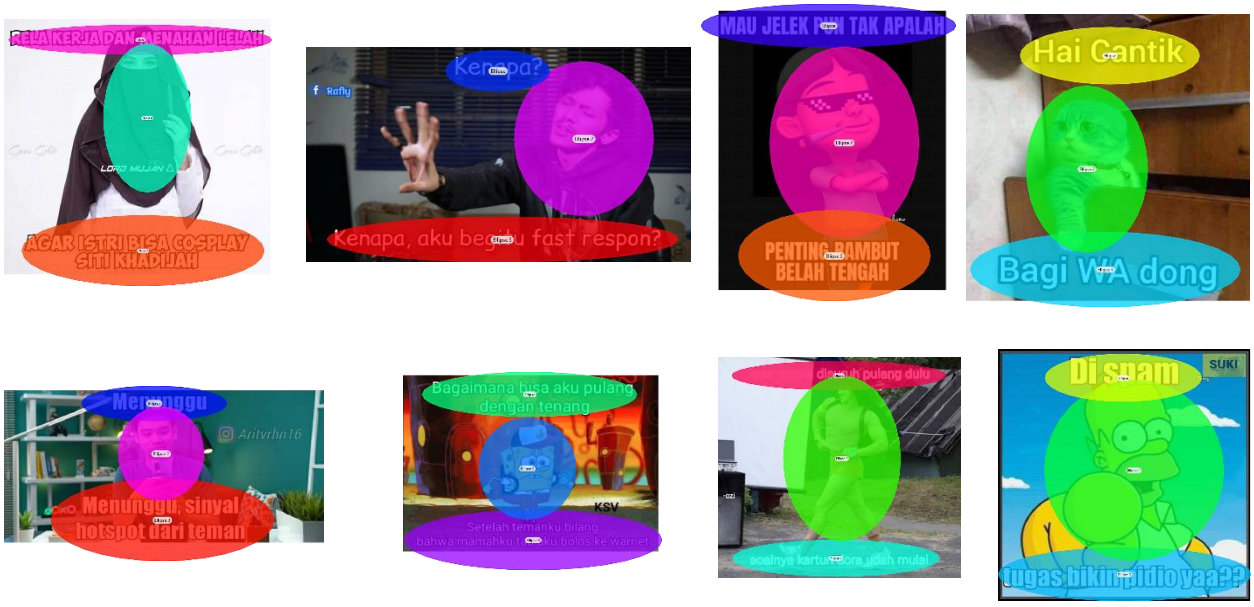
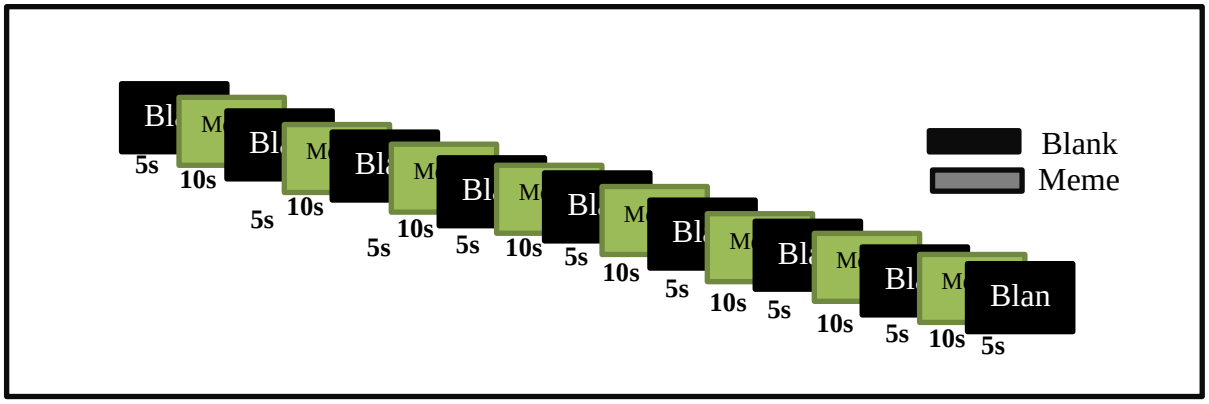


Figure 1 Area of Interest on the Eye tracker.

Memes as stimulation that displayed was consist of 8 images taken from Facebook group that related to social issues. By using the HET Tobii Pro X2-30, the participant sits at a distance of 60-70 cm from the HET device and then starts the calibration by matching the eye's gaze against the 5 red dots on the screen. In the use of HET, meme image conditions have marked an Area of Interest (AOI) to mark objects target on display.





The data was recorded by displaying each memes for 10 seconds and a blank for 5 seconds, then the data was analyzed by using Tobii Studio software with heatmap visualization.

Figure 2. Image Condition

Further analysis to determine the perceptions of millennials and non-millennials on memes, then we collected information from participants by using a survey[4]. Participants who have done the test with HET have to fill the survey.

3. RESULTS

after analyzed millennials and non-millennials data by using HET with a heat map, we could see the result following the table.

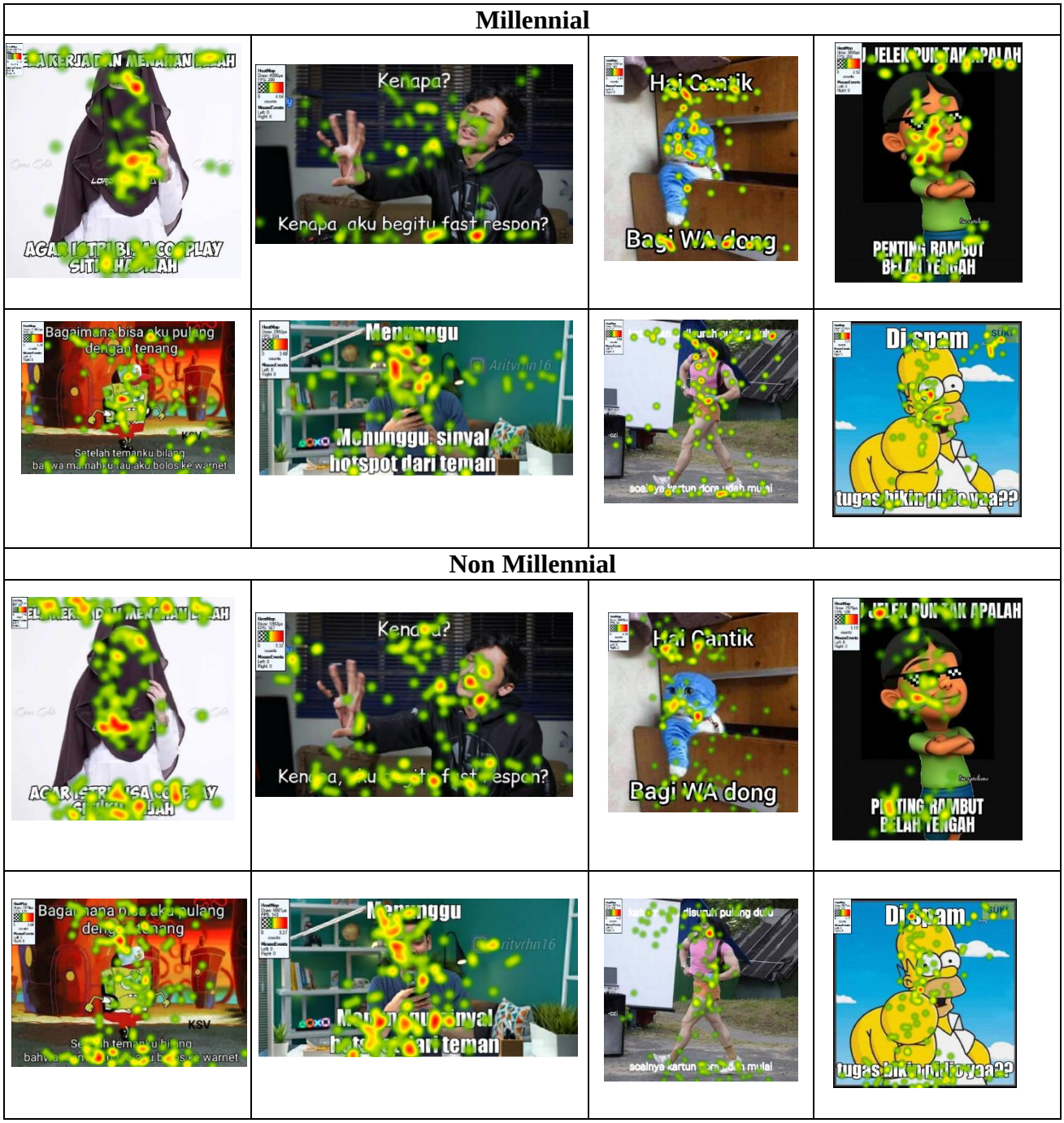


Figure 3. Heatmap Results

The results of the heat map at table 4 show that there are differences in millennial and non-millennial attention. In millennials, it could see that there's attention only focus on the image, then we also see that non-millennia attention focus on the text and the image. This result showed that millennials tend not to read, while non-millennials see the whole picture and also read the text on meme images.

The results of survey showed different results between millennials and non-millennials. The millennials could understand, and identify the issues from memes. Non-millennials couldn't understand, and identify the issues from memes.

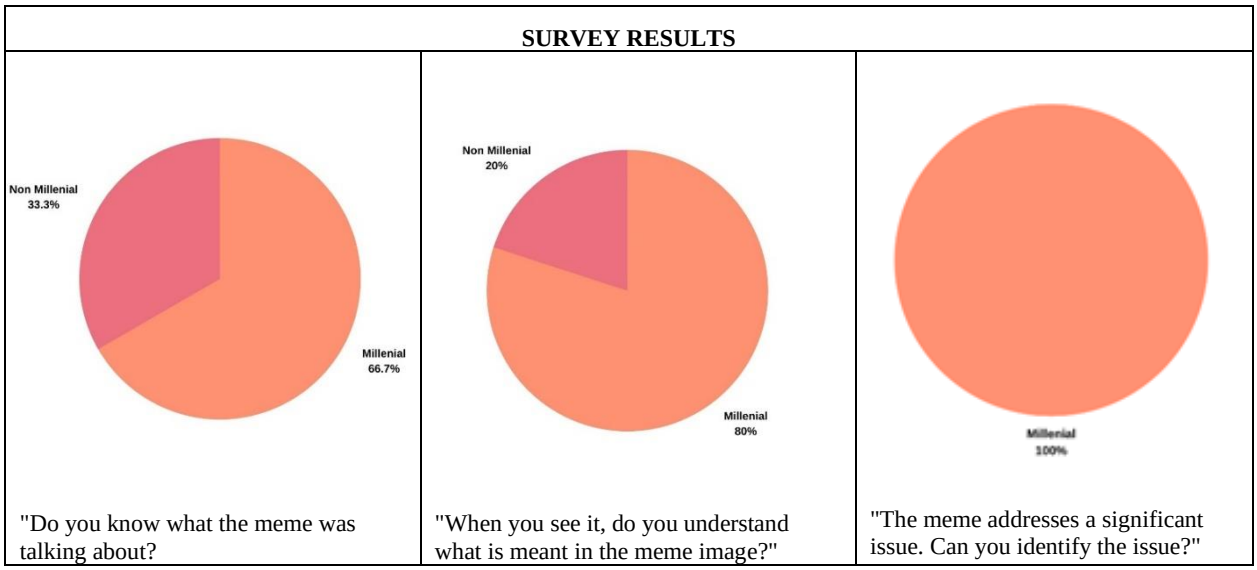


Figure 4. Survey Results

From the survey results, we could see that 80% of millennials understand the context discussed on memes, than non-millennials there were 20% who understand the context on memes. There were 66.7% of millennials who could understand the meaning of memes, than non-millennials there were 33.3% who understand what the meme images mean. Then in the context of identifying significant issues on memes, there were 100% millennials could identify the issues, and 0% for non-millennials.

4. DISCUSSION

This research is the first to examine the differences between millennial and non-millennial attention to meme. The heatmap results showed how much attention has been poured into AOI of meme by using HET. Non-millennials have giving their attention to text and images, than millennials have giving their attention only to image. The survey results showed that mostly non-millennials don't understand what the memes mean, and overall non-millennials couldn't identify the significant issues on memes.

The result from the millennials, showed that there is communication received with the images shown. According to Taecharungroj and Nueangjamnong[6], memes are a more fun way of communication for millennials so that it is easy to capture the contents of the message they want to convey. Although Considine [7]said that there is an opportunity for millennials to get misunderstanding about the meaning or message of a meme, but our research data showed that millennials understand what these memes mean, and understand it much better than non-millennials.

5. CONCLUSION

The aim of this study is to explore the differences of attention between millennials and non-millennials by using HET. Most research was done by using a questionnaire or a survey then analyzed them statistically, however, human eye tracker is a tools that have accurate results to discover someone's attention. According to Mills [7] there is a combination of why memes are considered effective communication, it because they have a tendency to be liked and shared. Memes become something that widely used to convey messages. This study is important to know effective communication designs by using memes based on attention differences.

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