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Are People More Attractive to People They Are Familiar with than Those People They Don't?

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Abstract

This research is based on Liu and his team's (2023) research on celebrity endorsements, which found that familiar faces could cause higher levels of attention. This experiment was designed to explore a condition whether people subconsciously looked at people they were familiar with when they opened their eyes and found whether there was a relationship between familiarity and attention. The hypothesis of this experiment is that individuals will subconsciously turn their attention more to familiar people than to unfamiliar ones. In the experiment, participants were asked to open their eyes and look at two people at the same time—a familiar person (A) and an unfamiliar person (B) and rate their attention levels. Although more than half of the participants initially looked at familiar people, statistical analysis showed no significant correlation between familiarity and attention ($t(40) = 1.030$, $p = 0.309$). The results of the study showed no significant difference in attention between familiar and unfamiliar people. This suggests that there may be underlying factors affecting attention sharing, such as habitual behavior, facial expressions, and direct gaze. These findings highlight the complexity of the attention process. and suggest that familiarity may not be a strong predictor of attention preference.

Keywords

Familiarity; attention; subconsciously; habitual behavior; facial expression; direct gaze

1. Introduction

This research aims to discover whether the familiarity rate will affect people's attention in their daily lives. A video from the media claimed that individuals were more likely to see the person that they are more familiar with or more like, and it also gave an inspiration for this research. Since adult preferences have not been studied as infants and toddlers tend to gaze at familiar faces for longer periods of time, researchers decided to choose this as a topic and design an experiment.

The first factor examined in this experiment was familiarity. At the beginning of the research, Liu and colleagues (2023) research on celebrity endorsements indicated that familiar faces attract more attention. This suggests that in specific consumption contexts, consumers pay more attention to familiar celebrity images, which in turn affects their cognition and attitudes towards related products or services. To assess familiarity, researchers used a face recognition test developed by Devue and his team, which presents that increased familiarity requires repeated exposure and time spent with faces (Devue et al., 2019). In addition, "depending on task timing, the dot-probe task can capture automatic orienting to a target face (Vallorani et al., 2021)" also provides this experiment a method to record the result. Familiarity intensity is closely related to eye movement behaviors, such as attention span, and is influenced by factors such as psychological stress, providing a new perspective for understanding the relationship between memory and attention

(Ramey et al., 2020). This provides a design basis for this experiment, which is observed through eye movement reactions. Despite the expectation, this study surprisingly concluded that familiarity did not significantly influence individuals' attention.

Through the experimental data, researchers discovered that familiarity influences attention preference, although the correlation is not particularly strong. As a result, the researchers considered other factors that may impact attention preference, such as facial preferences or perceived stimuli like smiling. However, due to the limitations of our experimental conditions, this study only delved into the impact of familiarity on isolated attention.

Facial preference refers to individuals selectively attending to stimuli from familiar faces (Wu. et al., 2013), and these preferences and stimuli may vary between genders (Wu et al., 2013). Since facial expressions convey emotional information and shape social cognition of one's body and personality, they play a significant role in human interaction. Objective features of smiles can affect self-perception of smile attractiveness (Horn et al., 2021). Moreover, people tend to spontaneously follow the gaze of others (Christopher et al., 2017), indicating that the experimenter's gaze can also impact the participants. Related to this is that the orientation of people's heads also can trigger a certain gaze preference (Zohary et al., 2022). These factors may influence attention preference in experiments and should be considered as potential experimental errors to be avoided.

Based on the above, this study will focus on exploring the relationship between familiarity and attention preferences in the adult age group.

1.1 Hypothesis

People would pay more attention to their familiar person subconsciously as soon as they open their eyes.

1.2 Statement of the Problem

The initial observation indicated that most people would choose to look at it subconsciously because of familiarity, so this article wanted to discover the potential effect of familiarity on attention and learn whether people would pay more attention to someone they are familiar with than they did not.

1.3 Definition of Terms

Familiarity level: In this study, it meant knowing more comprehensively, and deeply, and being able to discuss the basic situation of someone’s life in addition to necessary things, and it was self-reported in the questionnaire by the participants.

Attention: It refers to the individual in the perception, thinking, and behavior of specific information or stimulus selective attention and focus (Titchener, 1909), and in this experiment, it was self-reported as well.

2. Method

2.1 Sample and Participants

The participants were recruited from the United International College (UIC), which was located in Zhuhai, China. The researchers randomly selected all the participants using convenience sampling. Before the start of the experiment, the participants signed their consent form for the study. At the end of the experiment, there were 41 participants.

2.2 Design

This study used a repeated-measures design in the attention task. Experimenters collected the scores (from 0 to 5, 0 is paying no attention, 5 is paying attention immediately) of attention judged by himself after the participant finished this attention task, opened his eyes, and looked at Person A (he was familiar with) and Person B (he was unfamiliar with) in a short time. The attention scores of Person A and Person B could be analyzed by repeated measures t-test, and the result was obtained.

2.3 Materials

The data, a cornerstone of the research, was meticulously collected using the “Credamo” digital platform. A comprehensive questionnaire was designed and administered to the participants after the experiment. This questionnaire included key details such as the name of the researcher they first saw upon opening their eyes, their familiarity

(0-5, “0” means “totally unfamiliar”, while “5” means “very familiar”) with Person A and Person B, their level of attention (0-5, “0” stands for “didn't notice at all”, while “5” stands for “immediate attention as soon as you open your eyes”) towards Person A and Person B, and the reasons for their initial focus. The collected data will be exported to Excel and analyzed using SPSS, ensuring the accuracy and reliability of our research.

2.4 Procedure

In this experiment, experimenters randomly invited 41 university students to come with their friends or someone they cared to participate in this social experiment. Before the start of the experiment, our researchers would explain something about the experiment and make the participants willing to sign the informed consent form and participate.

After that, researchers set the participant’s friend as Person A (someone the participant was familiar with) and one of the researchers as Person B (someone the participant was unfamiliar with). Both of them were sitting face to face in front of the participant. Then, the participant closed his eyes until the AI voice prompted him to open and look at Person A or Person B simultaneously. If the participants had finished this task, the researcher would introduce them to complete a questionnaire to record their performance and collect their attention scores. Something that needed to be considered was that the participants could not see all the researchers during the experiment, which might have distracted the participants’ attention. Keeping the environment relatively silent with few people was another way to avoid such distractions as well.

2.5 Data Analysis

In this experiment, $H_0: \mu_D = 0$, there is no significant difference between the attention magnitudes of familiarity and unfamiliarity. However, $H_1: \mu_D \neq 0$ there is a significant difference. This study applied SPSS and Credamo to analyze the data collected from the questionnaires.

2.5.1 Descriptive statistical analysis

The following table presented by the collected data showed that more than half of the subjects would subconsciously look at those people they were familiar with after opening their eyes.

Table 1. Show the first person that the participants would look

Category	Frequency	Percentage
A (participants were familiar with)	23	0.561
B (participants were unfamiliar with)	18	0.439

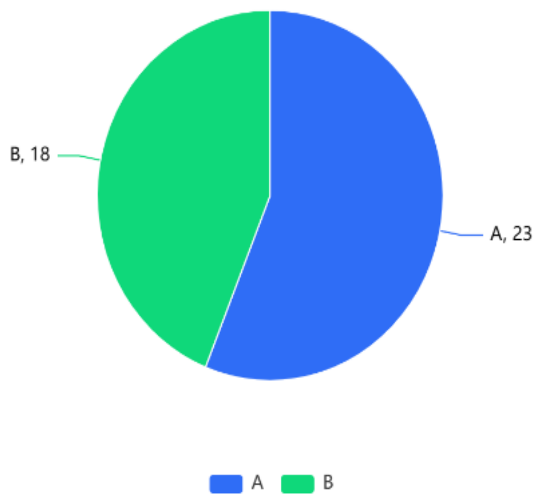

Figure 1. Pie chart for the first person that the participants would look at.

The subjects' average level of attention to Acquaintance A was 2.939 ± 1.663, while Stranger B was 2.480 ± 1.632.

Table 2. Descriptive statistical data for the attention degree

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Attention degree of A	2.939	41	1.6631	.2597
	Attention degree of B	2.480	41	1.6318	.2548

2.5.2 Repeated measures t-test

As the box and whisker chart shows, there was no strange value in the difference (difference = attention A score - attention B score).

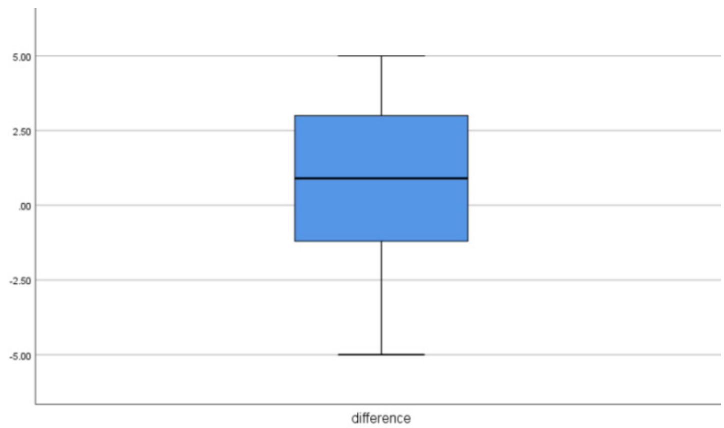

Figure 2. Box and whisker chart for attention difference value.

In addition, the calculation of SPSS also confirmed that "attention to A" and attention to B" were two paired samples because their correlation coefficient was -0.496, p = 0.001 < 0.05. Thus, sufficient evidence supported the use of a repeated-measures t-test.

Table 3. Table for paired samples correlation

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Attention degree of A & Attention degree of B	41	-.496	.001

The output of the repeated-measures t-test indicated that t (40) = 1.030, p = 0.309 > 0.05, so we could accept H_0, which means there was no significant difference between the attention magnitudes of familiarity and unfamiliarity.

Table 4. Table for paired samples test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Attention degree of A - Attention degree of B	.4585	2.8499	.4451	-.4410	1.3581	1.030	40	.309

2.6 Ethics Issue

There was no significant ethical issue in this study. Written approvals, principles of voluntariness, and confidentiality have been obtained from the participants in the informed consent before the study starts. Also, researchers would make a brief debriefing for the participants after the experiment. Participating in the study did not have any potentially harmful effects.

2.7 Result

Based on the collected data, it indicated that familiar people may be not more attractive than someone's unfamiliar person. In other words, people might not pay more attention to their familiar people subconsciously, after they open their eyes in a short time, although familiarity may have a little influence on the participants' initial response according to their interviews. This result is far away from the expected hypothesis, which might be caused by some limitations and other potential influence factors in the experiment process, and this essay will discuss more about them in the following statement.

3. Discission

3.1 Limitations of Process

This statistical result is far away from our expected hypothesis, which might be caused by some limitations in the experiment process. The first limitation might be the existence of irrelevant variables, like the noise and passersby in the experiment environment, Person A's and B's behavior, gender, and facial expression all could distract participants' attention. Besides, the operational definition of attention was defined as the participants' subjective perception. It may not be so efficient to present real and objective data on the participants' attention degree, which could be replaced by measuring the participants' fixation time. Moreover, the AI prompting content seemed to be confusing the subjects. And it would mislead subjects to open their eyes at the wrong time. And the sample size may be too small to be representative. In addition, some participants might know the experiment's aim while waiting, which may result in participant reactivity bias. All these limitations combined. It may lead to a high possibility of having poor external and internal validity and a large bias in this research.

3.2 Other Influencing Factors

Due to the experimental result, we found that there is no significant relationship between familiarity and attention. So, we then looked for other literature reviews so as to find the potential factors influencing participants' attention.

3.2.1 Factor 1: habitual behavior

Considering that our participants were unaware of the experimental design and its corresponding purposes before and during the experiment, their behavior of seeing, at first sight, should be considered subconscious or unconscious actions. In addition, research indicates that habitual behavior is characterized as automatic responses to stimulus cues, unaffected by conscious mental processes (Aart, 2000). At the same time, behavior can be influenced by automatic processes that occur without conscious awareness, as well as through more deliberate and thoughtful processing modes (Wood et al., 2002). Therefore, we consider that the participant may be influenced by past experiences and beliefs and automatically trigger the behavior. Based on this, we infer that habitual behavior is one of the factors influencing attractiveness and attention in our experiment.

3.2.2 Factor 2: facial expression

Interpreting others' facial expressions is another essential part of social interactions. However, people tend to naturally accept and pay more attention to positive emotions which can broaden people's momentary thought-action repertoires (Fredrickson, 2001). Furthermore, happy facial expressions consistently make someone appear more approachable and trustworthy. In an eye-tracking study, participants' attraction to different facial expressions was assessed based on changes in their eye and mouth movements. The results revealed that a smiling mouth and happy eyes enhanced participants' sense of trust, thereby increasing their attraction and attention.

3.2.3 Factor 3: direct gaze

Research has shown that direct gaze can attract attention and receive priority in visual processing (Farroni et al., 2002). Additionally, attention capture may even occur before conscious gaze perception. Subsequently, favoring the access of faces with a direct gaze to consciousness (Stein et al., 2011; Yokoyama et al., 2013). In terms of the behavioral level, First, seeing a face with a direct gaze increases performance in tasks requiring attentional focus on the face (Conty et al., 2016). Second, when making eye contact with direct-looking faces, responses to concurrent tasks related to stimuli other than the face are also delayed (Conty et al., 2010; Senju & Hasegawa, 2005).

4. Conclusion

In conclusion, based on the research data, it was found that there was not a significant difference between participants' attention to their acquaintances and strangers as soon as participants opened their eyes to see in a short time. This result diverged from the expected hypothesis, which was likely due to various limitations in the experimental process. Factors such as the presence of irrelevant variables (e.g., environmental distractions and participants' behaviors), the subjective nature of attention measurement, and confusion induced by AI prompting content contributed to potential bias and reduced validity. Additionally, a small sample size and participant reactivity bias further undermined the study's reliability.

Besides, some other influencing factors, like participants' habitual behavior, facial expression, and direct gaze, would also lead to this unexpected consequence. Because, habitual behavior, driven by past experiences and beliefs, was identified as a subconscious influencer of attraction and attention (Wood et al., 2002), facial expression, particularly positive emotions like smiling, was found to enhance trust and attractiveness (Fredrickson, 2001). Besides, direct gaze was also highlighted as a significant factor, capturing attention and influencing visual processing, thereby impacting attraction and attention levels (Farroni et al., 2002).

To be honest, this experiment might lack rigor and be limited in some scopes, like underscoring the importance of controlling variables and conducting experiments with rigor. Then we hoped to implement improvements in future experiments.

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