IN VS. OUT-GROUP RECOGNITION

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Abstract

The Cross-race Effect or the Own Race Bias is the idea that one can recognize people of one's racial group much quicker than people of different racial groups. This idea is also described as the “ingroup advantage” as people like to identify themselves with people who share similar qualities of race, age, gender, religion, or geography. Outgroup on the other hand is when people are unable to identify themselves in a group. The fusiform gyrus is the brain tissue that activates upon looking at a person's face. Cognition is all the mental activities associated with thinking, knowing, remembering, and communicating. The memory process includes encoding, storing, and retrieving information. Perception is the mental process of organizing sensory input into meaningful patterns. Concepts are mental groupings of similar objects, events, ideas, or people. A prototype is what we perceive to be the best example of a concept. In this experiment, the question that was examined was, how great is the effect of group bias present with students in different schools compared to their own? To conduct this experiment, a group of college students from different universities were used to portray the effect of their own group bias. I hypothesized that the students would be able to recognize students from their schools better than the students from different schools, and the results supported my hypothesis.

Introduction

No matter the case, everyone is unconsciously biased to a certain degree. We are prone to make judgments of everything we see even if we may not even realize it, and that is what makes us human. People from in-groups are ultimately treated differently from out-group members, even if the difference in treatment is minimal or negligible. An example could be when you first meet someone and their hygiene is not the best, you are quick to make the judgment that they are lazy, but the fact of the matter may be that they were going through something traumatic. We are quick to group things based on concepts and prototypes that we have experienced or learned. There have been previous studies conducted, using people of different races to test if they can differentiate between faces of other races compared to their own. The common frustration that people fall upon, “they all look alike”, is an example of how we find ourselves with perception and affinity bias, meaning we feel more comfortable with those who seem similar to us.

I chose this topic because I too find myself being biased and frankly rather trust a stranger who looks from my culture over another stranger who doesn’t. Furthermore, I have always observed in many aspects of social interaction the racial bias, whether intentional or not. The purpose of conducting this experiment is to assess how strongly people are prone to connect with people they find a sharing with as compared to someone else. One group of the experiment was shown faces along with the university name, while the other group was only shown faces. The experiment was single-blind, as the participants were only given instructions for their task as they were to complete it and were fully briefed about the entire experiment after its conclusion. The independent variable of the experiment was the amount of faces the participants were to memorize and recall. The dependent variable of the experiment was the number of faces the participants could recognize and recall after memorizing. I hypothesized that the participants who were shown the university name were more likely to recall the faces of their university compared to the faces that weren’t.

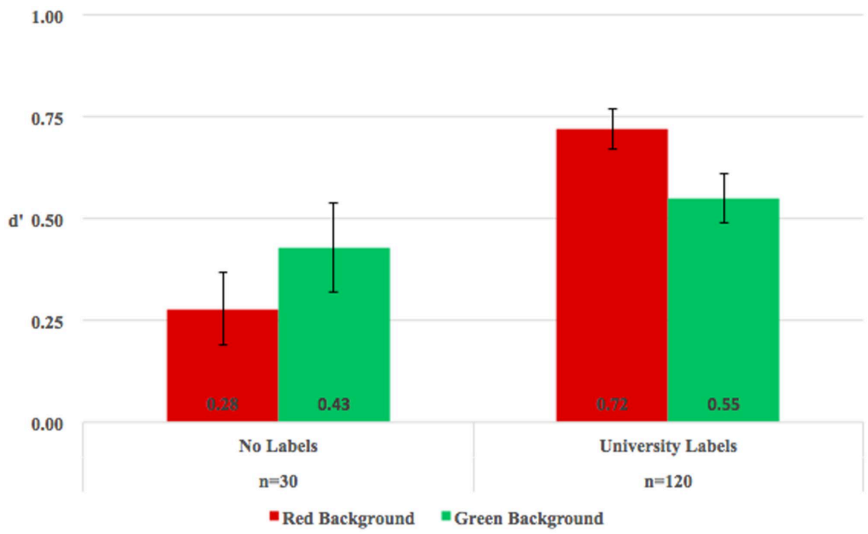
Method

Participants:

Students from three different universities, NYIT, Manhattan University, and Stony Brook University, will be selected randomly, both male and female between the ages of eighteen and twenty-five. The total number of participants will be 100 students per university, 50 male and 50 female, and 300 in total. Before being able to participate, all participants must sign a consent form and have a mandatory briefing session about what the experiment will entail. If for whatever reason a participant decides to opt out of the experiment at any time, they are not required to finish the experiment, their results will be neglected for analysis, and they will be replaced accordingly.

Procedure:

Step 1: The students that were selected were divided into experimental and control groups. The control group consisted of 50 students, 25 male and 25 female, from each university, while the other 50 were put in the experimental group. The control group was shown different faces of people with no label attached indicating the school they attended, while the experimental group was shown both the school and the face that corresponded.
Step 2: Each student who participated was taken to a room, individually, with a projector that presented slides with different faces.
Step 3: The experiment was explained to have two rounds, the first round they will be shown pictures of faces, and then take a break. Then in the second round, they will be told to identify the faces they seem to have seen in the previous round.
Step 4: In the first round, the control group will be given 10 seconds per face to examine, repeating the process with 30 faces and given a break to relax. For the experimental group, they will also be shown the name associated with the face, given the same amount of time as the control group.
Step 5: In the second round, the control group and experimental group will go about trying to identify the images of faces previously examined. The label for the experimental group will not be shown in this round. The face will be displayed for ten seconds, and the participant will raise their hand if they believe to have seen the face before. Not all faces from the first round will be displayed in this round to test the accuracy of the groups.
Step 6: After completing the experiment, the results were recorded and analyzed. The students were debriefed on what the experiment entails and the purpose of their task in the experiment. They were allowed to address any questions, comments, or concerns that they had about the experiment.
Statistical Analysis: An average was used for the statistical analysis, as the results were based on the number of correct faces recognized by the participants.



Results

After completing the experiment, I can conclude that Own Group Bias does indeed influence our perception and cognition of people. My hypothesis was proven correct, as people were able to affiliate themselves with the names provided, as opposed to just the face alone. In a study completed with Chinese college students it details, “Of interest was the extent to which the presence of the university labels influenced face recognition. Thus, measures of sensitivity… and response bias… were computed according to signal detection theory” (Frimer, 2017). The names of the schools provided a sense of grouping that allowed the faces to be more accurately detected. In this study, the idea of a color background was used to portray school affiliation and it proved that students recognized in-group better than out-group faces. Furthermore, “When participants did not believe the background color was signaling group membership, no recognition bias emerged. When the background was indicative of university membership, in-group faces were better recognized than out-group faces” (Frimer, 2017). The idea of identity and belonging allows the students to correctly recognize the faces that they feel connected to and are more comfortable with.

From this experiment, it was learned that the area of the brain that was most affected during the experiments was the fusiform gyrus. During the intensive research into this section of the brain, “The scientists then looked at the activity of the fusiform facial area using functional magnetic resonance imaging. Seeing the same face twice in a row suppresses neural activity in this brain region. The suppression lifted when participants saw a new face” (Society for Neuroscience, 2020). The fusiform gyrus is contracted and relaxed as a person is observing a person's face, allowing the frontal lobe to pass the judgment that is formulated from what is perceived. In another study, they “...found that in and out-group memberships could influence the early neural correlates of face processing. To our knowledge, this is also the first demonstration of a social-cognitive influence on face processing in the N170 component” (Zheng & Segalowitz, 2013). In this study the effects of the chemical N170 are studied, a brain component that is sensitive to faces. The study states how N170 levels were delayed as the participants were learning new faces within the experiment, showing how the brain processes what we perceive in our visual plane. Furthermore, “Participants were more accurate at

recognizing faces of their age and race, indicating significant other-age and other-race effects in face recognition" (American Psychological Association, 2019). People are more comfortable with others who fit the concepts of who they seem trustworthy and reliable, like parents, school friends, and teachers. This also can be an effect of how a child is raised to perceive others according to what they were taught growing up.

Neural Mechanisms and Face Processing

Many different neural mechanisms are involved in processing own-race and other-race faces which contribute to bias in social interaction. In specific, the fusiform gyrus, a brain region associated with face recognition, shows differential activation patterns when individuals view faces from their race compared to other races (Wong et al., 2020). This indicates that the brain processes faces from ingroups and outgroups differently, contributing to the observed biases in face recognition. Particular regions in the fusiform gyrus show distinct activation patterns when processing faces from one's race versus other races. This contributes to understanding the neural basis of the Cross-race Effect (CRE). These racial biases in people when encountering individuals of different appearances can influence the processing of faces in the neural area. Individuals with higher implicit biases show more pronounced differences in fusiform gyrus activity when viewing faces from different racial groups (Wong et al., 2020). Reducing inherent biases in face recognition and individual interaction, particularly the Cross-race Effect (CRE) and other forms of implicit bias, requires an effective approach that allows both individual and impartial, open-minded strategies. Encouraging positive interactions between different racial and social groups is an important practice due to these biases being prevalent in all aspects of today's society.

Discussion

From this experiment, I learned that the Own Group Bias does surround everyone even though we might be friendly or socially popular. People like to perceive what they want to see and are more likely to form connections with those who seem to appear close to what they see themselves as. However, many confounding variables needed to be taken into consideration in this experiment. The students that participated were all selected randomly, meaning that it is likely that one student traveled a lot more or was raised in a more diverse community than the rest of the group, giving them an unfair advantage to distinctly recognize faces better than others that didn't have much exposure to a larger community. A student could also possess a stronger memory or a skill, such as photographic memory, allowing them to perform better in recalling what they saw. The condition of the student, in terms of sleep or well-being while experimenting could affect the results. The sample size of the experiment would need to be quite large to solidly prove the existence of Own Group Bias and acquire more accurate results. For future studies, a more rigorous background check on the students or a survey to properly eliminate any unfair advantages, and increase the sample size to acquire better results.

The importance of this experiment is that it can help us understand the behavior of human beings as social creatures better. The types of people that individuals choose to surround themselves with or the people they are attracted to are through the social categorization that we have embedded in our thought process. Understanding facial recognition can help with real-world applications, such as a witness testifying against a criminal or a victim

in a crime when coming to decide who was the assailant, airport security, or simply recognizing a family member in a large public setting. We must try to eliminate the bias that we hold against others without even fully understanding a person for who they truly are. With further research in this area of psychology, the advancements that can be made not only in the field of science but in other aspects of daily life can help shape society for a better role in accepting and cherishing our differences allowing us to come together and be united.

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