Effects of Group Saliency on Category Size

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KEYWORDS. Category, race, social dominance, saliency

BRIEF. This study examines how the category size of race and gender is affected by social dominance orientation.

ABSTRACT. Humans, as social beings, can subscribe to different identities depending on the given context. Individuals can identify themselves as a male, a student, or as a sports enthusiast. Previous research has found that when a particular group's salience is increased, an individual's performance on behavioral tasks can be altered. Two studies looked at gender and race as modulating factors affecting group salience. Both tasks had volunteers look at faces (with increasing male/female or Asian/Caucasian characteristics) and asked them to decide when there was a gender or racial switch from one race/gender to another. Participants filled out the Social Dominance Orientation (SDO) questionnaire and three other questionnaires to provide a more holistic view of participants. Gender grouping had no significant outcomes due to the fact that the participants' gender and SDO had no effect on gender selection. Racial grouping for Caucasian participants showed trending data that suggested their category size for Caucasian faces was much larger than their Asian category size, which went against our previous thoughts. Race can possibly be characterized as a salient trait for specific groups, but SDO concerning race seems to have a weak effect on limiting the threshold size of a participant's in-group.

INTRODUCTION.

The group one identifies with can vary depending on a situational context; a person may identify themselves by a specific trait they share with another group of people. It is possible that belief in social hierarchies can affect this identification. Previous research has found that individuals who believe in a strong group hierarchy perform differently on lexical decision tasks compared to persons who do not sanction such ideas [1].

Sidanius and colleagues put forth a continuum known as Social Dominance Orientation which measures the endorsement of social hierarchies, or the idea that society functions better when there is one group in-charge [2]. It is possible that individuals who score high on the Social Dominance Orientation (SDO) scale might consider any group identity to be more salient and have a more clear-cut grouping of out-group individuals compared to an individual who doesn't believe in a strict social or group hierarchy.

The specific salient group traits used in this study was race and gender, as they are general and are common in participants' daily lives. The categorization of race and gender and its recognition in individuals can correlate with Social Dominance and perceptual equality of a society.

By examining these characteristics, we can understand people in our society view someone they aren't similar with, thus allowing us to appropriate time in educating people on being tolerant and further understanding the cognitive functioning of perceiving racial and gender stimuli.

The Face Race and Gender Identification task created required people to categorize images of different races faces as well as faces of different genders. If the correlation between SDO scores and overall cognitive rigidity was significant, then tendencies can be determined in specific individuals and the understanding of oppression-based inclinations in group hierarchies can be broken down to the individual personal as well as looking into group salience and what specific characteristics people look for in choosing groups.

It was assumed that Socially Dominant males and females, Asians and Caucasians would have a smaller category size for their respective race or gender in each task.

MATERIALS AND METHODS.

Gender Identification Task.

The Gender Identification task involved 53 volunteer participants. The statistical demographic of the group is as follows: 86% Caucasian, 9% African-American, 3% Asian American and 1% percent Hispanic and Asian.

Social Dominance Orientation questionnaire was given to get a more holistic view of participants and was also used due to its ability to quantify characteristics in group-based hierarchies as wells as being able to predict attitudes toward social inequality as well as conservatism [2].

Four male-female face sets were created using MATLAB. Participants would be presented with the base male and female faces of a single face set so as to familiarize themselves with the 100% male and 100% female appearance. Starting with the base male face, participants would be shown faces that would be presented in a sequential order that would have 5% increments of female appearance.

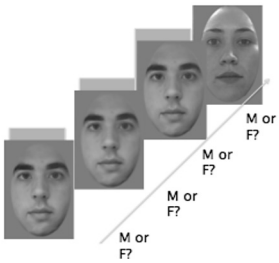

Figure 1. Male base face with 5% increasing female characteristics (100%, 95%, 90%...0%).

Participants would press a specific key to indicate the face is still male until the majority of the face had become female in which case a new key would be pressed. This would be repeated, except rather than starting with the male face, the new trial would start with the female face and with each face increasing in male characteristic by 5%. Five trials were run for two of the four face sets created with response time and sex choice recorded for each face presented.

The final two face sets were presented in 25 trials in a randomized order. Participants were required to decide if the face was male or female.

Face Race Task.

Ten volunteer participants with a mean age of twenty-four were used for the race identification task. The demographic of the participant population consisted entirely of Caucasians.

Social Dominance Orientation questionnaire was given to these participants as well as a handful of other questionnaires to make sure all forms were being properly filled out as well as monitoring mental stability of participants to keep the control population semi-homogenous.

Four face sets were created using MATLAB. The two races being used were Caucasian and Asian faces with two of the face sets being female and two others being male.

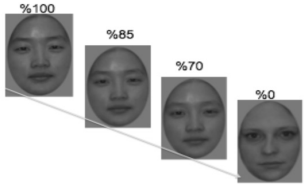

Figure 2. This figure shows increasing characteristics of a caucasian face in the asian face. The image presented starts with 100% Asian face and ends with the full caucasian face.

Participants were presented with two base faces (as seen in Figure 2) for each face set, one being completely Caucasian and the other being completely Asian. Starting with the completely Caucasian face, there would be a 5% increment of the Asian face characteristics.

Participants were asked to indicate if each face presented was Caucasian by pressing a specific key and to indicate when they thought the face had finally switched over to an Asian dominance by pressing the Asian respective key.

The next trial would start with the completely Asian face would follow the same format. Five trials were run for each face set. Response time and race choice were recorded. Average response time for each trial and Caucasian to Asian and Asian to Caucasian threshold size was analyzed using Microsoft Excel. Lines of best fit were created using statistical analysis program JMP.

RESULTS.

Gender Identification Task.

A least squares regression model was run which found that there was no participant gender by stimuli gender interaction, $F(1,66)=.0124$, $p>.05$. A matched pairs t test was run for female threshold in Figure S1 and Figure S2, and found that all participants required less female faces before indicating the face had switched to male $t(67)=3.723$, $p<.001$. There was no association between female participants' SDO total score and the male and female thresholds as seen in Figure S1; $R2=.01$, $p>.05$, $R2=.02$, $p>.05$, respectively.

There was no association between male participants' SDO total score and the male and female thresholds; $R2=.001$, $p>.05$, $R2=.18$, $p>.05$, respectively (as seen in Figure S2).

Face Race Task.

The Face Race in-group participants' categorical sizes of their own race's (Caucasian) faces were slightly larger than the categorical size of the foreign race as seen in Figure 3. A seen earlier, the threshold size for in-group faces by in-group participants went against what was predicted.

Due to the small sample size of the preliminary data, correlation analyses could not be run on the SDO total score and threshold size for race. Figures were created to show average reaction time for each face set.

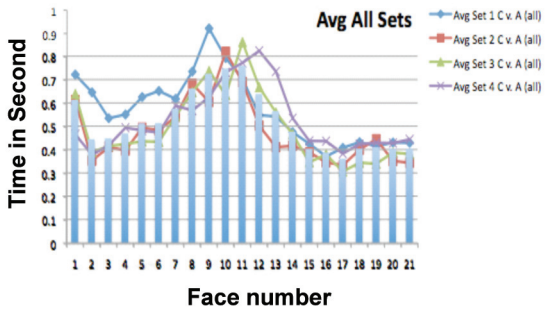

Figure 3. Average reaction time (Caucasian vs. Asian) for each of the four Face Sets compared to overall average reaction time for Caucasian vs. Asian.

DISCUSSION.

Gender Identification Task.

Females showed a smaller categorical size for their own gender than their male category size. Although threshold size was smaller for the females' respective gender, a p-value greater than .05 indicated no significant correlation between SDO score and threshold size. Although not significant, half of the overall predictions were supported by the smaller threshold size of females' own gender.

Males' categorical size for their own gender was much larger than their categorical size for females, going completely against what was previously hypothesized. Although the range for female thresholds in male participants had a wider spread (by having a much smaller threshold for out-group gender), a p-value greater than .05 showed no significance between SDO score and threshold size. Data on this specific threshold for males could indicate trending traits for males' category size of females.

Overall, Social Dominance Orientation had no sizeable effect on respective categorical size and did not influence categorical size of the out-group gender. Participants were not primed for the task, which could possibly have an effect on categorical size to a participant's specific gender. These preliminary results show both Men and Women performed about the same, and that gender may not be describes as a salient group identity for both males and females due to the lack of a significant relationship between SDO and threshold size found in the data collected.

Face Race Task.

Due to the select few participants, Social Dominance and its effect on categorical size of race could not be determined and remains unknown. The data can only be defined as trending due to the participant number. It is possible that SDO does affect racial category size, implying that racial categorization and (possibly) mental racial segregation still exists in our society.

Since the demographic of the study consisted of all Caucasians with no Asian or out-group participants, the threshold size of Caucasians as decided by out-group participants remains unknown.

This open area leaves race as a possible trait that can be deemed as a salient group identity and possibly affects groups and categorical decision-making. Future directions will obviously involve a higher concentration of out-group participants.

CONCLUSION.

Group saliency is a selected characteristic that is applicable to all members of a specific group. In most cases, people adhere to one or more groups due to the multiple traits we all consider ourselves to encompass. This study, which analyzed race and gender as traits that were salient to groups, showed preliminary data that argued gender was not a salient group identity and racial group saliency as trending. These outcomes show that there are traits we do and do not mentally look for and ascribe to in social groups. Although Social Dominance Orientation was not an attribute that greatly affected these choices, there is a possibility it can affect other salient traits.

ACKNOWLEDGMENTS. A special thanks to Dr. Park and her lab, specifically Joel Peterman, for all the support. Thanks to Dr. Creamer and SSMV for all their help and making this possible.

SUPPORTING INFORMATION.
Figure S1. Female visual correlation
Figure S2. Male visual correlation

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2. J. Sidanius, F. Pratto, Camb. Univ. Press (1999).

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