The Effect of Familiarity on Facial Positivity

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Abstract

The problem under investigation is whether familiarity has an effect on how positively or negatively people are perceived by others. For the purpose of establishing a reasonable argument for the hypothesis that familiarity does have an effect on how people are perceived, the experimental method used was to conduct a survey where people were asked to rate how positive the face presented to them was on a scale of 0 to 100. Out of the 40 faces presented, the familiarity and positivity of the faces were manipulated by using happy and neutral faces as well as the faces of celebrities and unknown individuals. Through this experiment it was found that familiarity does have an impact on how positively people are perceived in that they are likely to be seen as more positive if they are a familiar face. The conclusion that can be drawn from this is that because familiarity has a salient impact on perception of others (but not in all instances), familiarity is a significant social force that should be taken into consideration when evaluating the factors that affect group and social dynamics.

The Effect of Familiarity on Facial Positivity

Most people would be familiar with the proverb “when in Rome, do as the Romans do”. To further verify the truth of such a statement, the aspect that is under consideration in this research paper is whether familiarity, which has previously been defined as “knowledge of another individual” (Rockett, T. L., & Okhuysen, G. A, 2002) has an effect on how positively that individual is perceived; that is, whether they are viewed as appearing more positive or negative regardless of other factors such as facial expressions. For this purpose, three relevant papers are discussed in this section as having provided salient literature and conclusions as relates to this research question.

Paper 1

The title of the first paper under discussion is: Familiarity in groups: Exploring the relationship between inter-member familiarity and group behavior. (Rockett, et al, 2002). The purpose of this paper was to review the effects of familiarity on the group process. To this end, it answers questions such as: what are the elements that influence familiarity? And how does familiarity affect group behavior? In order to answer these questions, the research conducted was that data was obtained from groups that worked on a semester-long project by collecting evaluation reports from one hundred and thirty group members at the end of the semester.

The results that were collected indicated that prior knowledge of the individuals in their group had a great impact on the desire to interact, work and socialize with those individuals. Therefore, the conclusion found from this experiment that is relevant for this paper is that individuals who know each other are more likely to engage in positive behaviors than those who do not know each other.

Paper 2

The title of the second paper under discussion is: Are You Smiling, or Have I Seen You Before? Familiarity Makes Faces Look Happier (Carr E.W, Brady T.F, Winkielman P., 2017). This paper studied the effect of unreinforced repetition (familiarization) on the perception of facial emotion. There were 2 experiments conducted to study this: Experiment 1 used a paradigm in which subjects' responses were orthogonal to happiness to avoid response biases, and Experiment 2 the effect was replicated to with a 'happy or angry' categorization task. The study found that actual happiness in the faces presented did not need to be high if the target face was more familiar than it was novel.

The results from the experiment were that the strength of the association between familiarity and positivity increased as the test expressions became happier. Therefore, the conclusion to this study was that familiar faces appear happier than novel faces, because familiarity selectively enhances the impact of positive stimulus features. This is greatly relevant to our paper as it establishes a connection between familiarity and positivity, and strengthens the hypothesis that familiarity has an effect on how positively people are perceived.

Paper 3

The title of the third paper under discussion is: The Contribution of Face Familiarity to Ingroup Favoritism and Stereotyping (Leslie A. Zebrowitz, P. Bronstad M, Lee H. K, 2007). This paper was concerned with the effects of face familiarity on favoritism. Forty white American and forty Korean college undergraduates participated in the study where faces were displayed and rated on likeability and other factors. The results found that ingroup favoritism was high for Korean raters but not for White raters. The conclusion to the study was that favoritism and stereotyping did play an important role in how facial likeability was perceived.

Although this paper focuses on own-race positivity as opposed to familiarity, the research is still relevant for our discussion insofar as it speaks about favoritism and stereotypes and the contributions of face familiarity.

The logical continuity of previous research to the current discussion is that the existing literature suggests that there is a correlation between familiarity and how positively facial expressions are perceived, as well as a suggestion that there is a relationship between familiarity and group behavior. Therefore, it is worthwhile to explore the exact nature of the relationship between familiarity and how positively or negatively people are perceived to make conclusions about group behavior. Therefore, the current hypothesis being tested is that the more familiar an individual is to a face, the higher they will rate them on the positivity scale.

For the purpose of this study, the dependent variable being measured is the perceived positivity associated with an individual. This is operationally defined as the positivity rating given on a scale to the face of an individual. The independent variables are facial expression and familiarity of faces. Familiarity is operationally defined as unfamiliar and familiar faces (‘familiar’ faces are faces of well-known individuals i.e. celebrities or public figures) and facial expression is operationally defined as the facial expressions of the individuals being positive or neutral.

The hypothesis and experimental method relate to the problem by measuring if familiarity of faces has an impact on the perception of positivity. From the existing literature we predicted that there will be a significant effect on familiarity on the perception of faces in that people will perceive the faces as more positive if they are more familiar.

Method

Participants

The participants used for this study were undergraduate students from NYUAD. There were 17 participants from whom data was collected. The participants were recruited through an open call for a survey. Therefore, there was no control of gender or cultural background so the demographics of the participants were unknown. The online survey tool Qualtrics was used to design and distribute the survey.

Apparatus and Stimuli

The apparatus used was a survey that was distributed online. Participants opened and answered the survey on any media playing device such as a laptop or a phone. As long as the device can display images and a rating scale that can be answered any device is sufficient. All participants filled out a consent form prior to answering the survey.

The survey in question displayed 40 images of people's faces. 10 faces were unfamiliar faces that assumed a neutral facial expression, 10 faces were 'familiar' faces that assumed a neutral facial expression, 10 faces were unfamiliar faces that assumed a happy facial expression and the final 10 faces were 'familiar' faces that assumed a happy facial expression. 'Familiar' is assumed in this case, as the faces defined as familiar in this survey were that of celebrities or public figures whom the participants assumed most individuals would be able to identify or at least recognize.

Procedure

Each participant was asked to view the face displayed (there was no period of time specified) and rate the 'positivity' of the face on a scale of 0 to 100. 'Positivity' in this case is

defined as how positive or negative the facial expression is displayed by the face of the individual in the image. The participant was free to interpret this at their own discretion. This may have led to some large differences in how each individual face was rated, but since the same participant rated every face, the results would still be valuable as the variation between each variation could be considered approximately the same. Furthermore, the order that the faces appeared in was randomized to avoid potential bias that might have been introduced by a specific order of faces. Each face was displayed on a separate page (the participant had to respond to a face before viewing the next one) in order to control for potential bias that might have emerged from being able to compare faces.

In the pilot study the same procedure was used with the exceptions that only 10 faces were used, and the order of faces were not randomized. The randomization change was made in order to control for the bias mentioned above, and the number of faces were increased to obtain more data to increase the accuracy of the results.

Results

The results found that the mean for unfamiliar neutral faces was much lower (24.66) than familiar neutral faces (38.14). However, familiar neutral faces and unfamiliar neutral faces were very close in their mean ratings (19.7 and 14.4 respectively. The standard deviations for all four conditions are as follows: 19.7 for familiar neutral faces, 14.4 for unfamiliar neutral faces, 9.2 for familiar positive faces and 9.8 for unfamiliar positive faces. All descriptive statistics above can be seen in Table 1.

A repeated measures ANOVA test was run to determine statistical significance of the findings. The test found that the within subjects effects of familiarity can be considered as

statistically significant ($P<0.05$) with a main effect above 1 ($F = 7.11$). The effects of expression can also be considered statistically significant ($P<0.01$) with an F-ratio above 1 (85.12). Furthermore, an interaction between the two variables could be identified with a p value of 0.001 and F value of 15. All values are shown in Table 2.

Discussion

From the statistical analysis the summary of the results can be seen as follows: there is a positive effect of familiarity on perception of positivity when the faces displayed have a neutral expression, but there is no great effect of familiarity on perception of positivity when the faces displayed have a positive expression. From this we can conclude that the hypothesis is partially confirmed, as it is true only in the instance where faces are neutral.

The reasons for this could be hypothesized as follows: the effects of familiarity on perceived positivity are overshadowed by the effect of positive facial expressions on perceived positivity. A separate study would have to be conducted to determine the impact, but that would explain the reason for the hypothesis only being true in a particular instance. Apart from that, the conclusion can be made that there is an effect of familiarity that should be considered when evaluating group dynamics. This is consistent with previous research on variations of the same subject, where it has been found that there is an effect of familiarity on perception of individuals (Carr et al, 2017; Zebrowitz et al, 2007), however it is in conflict with the previous study that established a statistical positive correlation between familiarity and facial expressions even when the expressions are positive (Rocket et al, 2002).

The first paper discussed (Rocket et al, 2002) indicated that prior knowledge of individuals had a positive impact on desire to work, interact and socialize with those individuals.

Although desire to work etc is separate from viewing facial expressions as more positive, the studies are consistent with each other if it can be assumed that desire to interact is connected to perception of positivity. The second paper (Carr et al, 2017) discussed the effect of familiarization on perception of facial emotion. There is a far stronger relationship between our discussion and this study, and results are relatively consistent with each other although the experiments were conducted differently (this paper used two experiments as opposed to just one). However, as mentioned previously, there is an inconsistent result when considering the effect of familiarity on perception of facial emotion in the instance of positive facial expressions. The third paper (Zebrowitz et al, 2007) was concerned with the effects of face familiarity on favoritism. Similar to the first paper, the relationship between favoritism and perception of positivity is tenuous, but results are consistent with the paper if a relationship can be assumed. Future research would have to be conducted to establish such relationships. Therefore, when finally considering the truth of the proverb in question: “When in Rome, do as the Romans do”, we cannot conclude with these results along whether the proverb is true or false. However, the conclusions that can be drawn from this study indicate that the proverb may be truer than otherwise, as we can establish that if an individual is familiar with another, there is a higher likelihood that they will view them as being more positive. Whether this can be further extended (with research) to draw conclusions about group dynamics and eventually assimilation should be left to future research.

Conclusion

Limitations of Existing Research

Although the results are statistically significant and in part met the expectations of the study, there were many factors that could be improved upon for better results. First, a sample

size of 17 could be largely increased to have more accurate results. Second, the ‘familiar’ faces displayed in the survey could incur various forms of bias (e.g. own-race bias, or if a participant has a personal reason for disliking any particular well-known figure). Controlling for such bias would be preferable. Similarly, there may have been biases present from the participants as there was no control of gender or cultural demographics. There may be no significant effect found if for example a particular cultural demographic had reason to dislike a particular public figure (e.g. if a particular celebrity was known for being racist), which might lead to a severe negative correlation between familiarity and positivity.

Directions for Future Research

Keeping all of this in mind, we can point to directions for future research. More research on the relationship between perception of positivity and mimicry would be helpful in determining the truth of the proverb “When in Rome, do as the Romans do”, with eventual studies about assimilation of individuals. If we were only to consider the results of the experiment at hand, future research could be done about the effect of familiarity on other kinds of emotion (fear, shock, anger etc) to further validate the impact of familiarity on how individuals perceive each other. From there more research could be done to help us understand the nature of perception of others in a more comprehensive way.

References

Carr, E. W., Brady, T. F., & Winkielman, P. (2017). Are you smiling, or have I seen you before? familiarity makes faces look happier. *Psychological Science*, *28*(8), 1087–1102. https://doi.org/10.1177/0956797617702003

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Zebrowitz, L. A., Bronstad, P. M., & Lee, H. K. (2007). The contribution of face familiarity to ingroup favoritism and stereotyping. *Social Cognition*, *25*(2), 306–338. https://doi.org/10.1521/soco.2007.25.2.306

Tables

Table 1

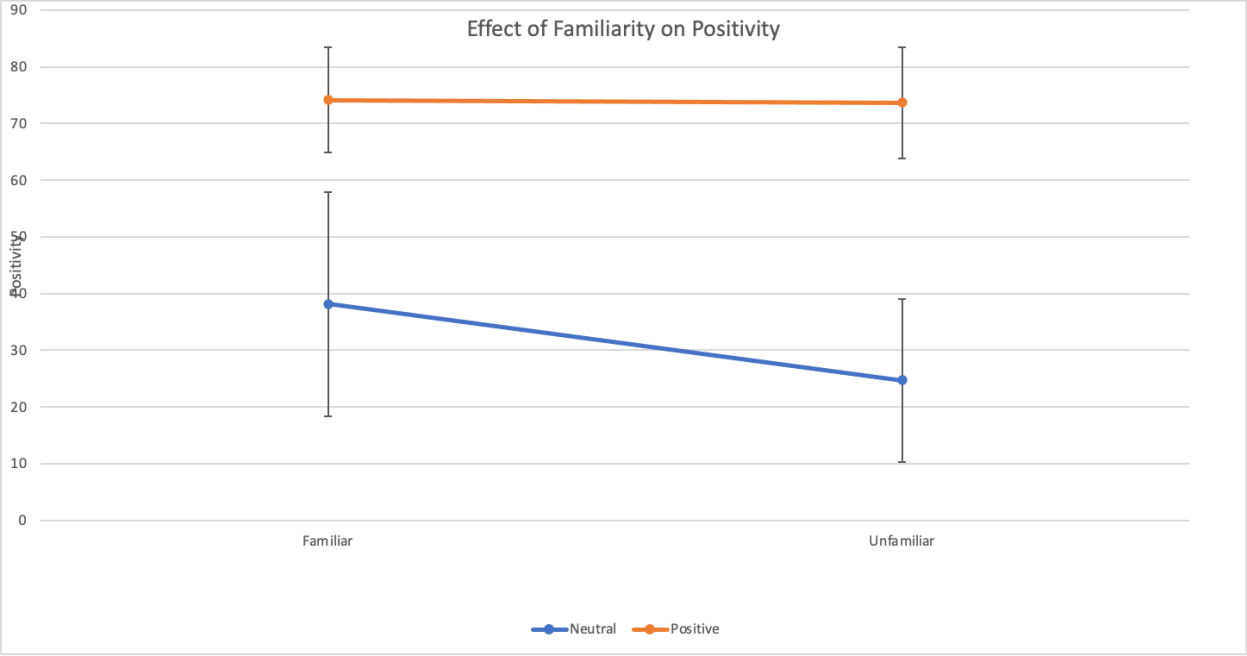

Table 2: Repeated Measures ANOVA

Within Subjects Effects

	Sum of Squares	df	Mean Square	F	p
Familiarity	828	1	828.5	7.11	0.017
Residual	1864	16	116.5		
Expression	30688	1	30688.2	85.12	<.001
Residual	5768	16	360.5		
Familiarity ✻ Expression	717	1	716.5	15.00	0.001
Residual	764	16	47.8		

Note. Type 3 Sums of Squares

[3]

Between Subjects Effects

	Sum of Squares	df	Mean Square	F	p
Residual	4064	16	254		

Note. Type 3 Sums of Squares