

APPLICATION FOR THE 2014 RANDOLPH COLLEGE SUMMER RESEARCH PROGRAM

Names of Applicants:

Dennis M Goff Ph.D. Charles A Dana Professor of Psychology , Sandeep Poudyal'16, Psychology major Lauren Mason'16, Psychology major

Title: evolution of perceived attractiveness in potential mates

Abstract

We plan to spend the summer exploring the existing research on factors that influence attractiveness of potential mates and proposing and piloting a set of experiments that will test new hypotheses in this realm. Sandeep and Lauren will give us a good start on this project by developing our first research proposal in their Research Methods class this semester. That proposal will serve as the basis for our first experiment. We will divide our time over the summer between carrying out that project and delving deeper into the research literature and developing new research ideas. Our review of that literature will continue with potential influences on attractiveness including color of clothing or background, ovulation risk, masculine and feminine features as signals for health or fertility, and others. As far as we know, no one has explored the role that prenatal testosterone levels might have on these influences. We will consider ways that we might fill that gap in the research literature by using digit-ratio as an indicator of prenatal testosterone exposure. We plan to continue this work into the fall semester and possibly later with presentations of our results at regional and national meetings.

Background and research plan

Physical attractiveness serves as one of several initial factors in identifying potential mates. When judging physical attractiveness men and women concentrate both consciously and unconsciously on different areas of other people's bodies. For example, among heterosexuals, males might focus on waist to hips ratio in potential female partners while females might focus more on the shape of the jaw or other parts of the face in potential male partners. These judgments serve as an initial indication of the other person's potential as a suitable match. In our research, we will further examine physical traits that might be important to men and women in choosing suitable mates. (While there is substantial research exploring attractiveness among heterosexuals less has been done to examine attractiveness among individuals attracted to the same sex. We will consider expanding the research findings on attractiveness among heterosexuals into perceived attractiveness of same sex partners.)

Earlier research on sexual attraction has suggested that women find men with a deeper voice as more attractive. The deeper voice reflects in part exposure to higher levels of testosterone during puberty. These higher testosterone levels have effects

beyond voice (Lefevre, Lewis, Perrett, & Penke, 2013). They also develop a more masculine facial structure. An evolutionary explanation for these preferences suggests that these women are unconsciously seeking mates with higher levels of testosterone.

Other research suggests that these males might have more effective immune systems and so “better genes” (Rhodes, 2006). Men on the other hand, find higher pitched voices, youthful faces, and an idealized hips-to-waist more attractive ratio in women. All of these factors are thought to serve as cues for youth and potential fertility.

It is not too surprising that females who are at high risk for conception (ovulating) find different features in males attractive than when they are at low risk for conception (Gangestad, Thornhill, & Garver-Apgar, 2010). For example, females at high risk for conception tend to favor males with a facial structure that indicates high levels of exposure to testosterone during puberty (Lefevre, Lewis, Perrett, & Penke, 2013). When at low risk for conception they tend to favor a softer or more feminine facial structure. An evolutionary perspective on these differences suggests that females are looking for honest signals about the quality of a potential mate’s genes when they are at high risk for conception and signals for committed partners when they are at low risk.

When seeking mates, both men and women also seek evidence of status. Women perceive men who are dressed or surrounded by red as more attractive and powerful, perhaps with a higher status. Men find women who are dressed or surrounded in shades of red to be more sexually attractive. In an interesting bit of symmetry, women are more likely to wear shades of red or pink around ovulation, at the peak of fertility (Beall & Tracey, 2013). The researchers in this area point out that the color red serves as a similar signal among some other species leaving open an interesting theoretical question about how this color might affect a range of perceptions among humans.

Several of the research findings discussed above posit that previous exposure to testosterone affects a current trait. Other research demonstrates that prenatal exposure to higher or lower levels of testosterone can affect behavior in adult males and females. Professor Goff has worked with students over the past several years to investigate this phenomenon using digit-ratio (ratio of the lengths of the ring and index fingers) as an indicator of prenatal testosterone exposure. In general, males have a lower ratio than females and lower ratios are associated with higher exposures to prenatal testosterone. However, differences in digit-ratio among females (or males) serve as an indicator of individual differences in that prenatal experience. Our previous research has shown that digit ratio can predict toy preferences in female children and adults and aggression levels in adults. Other work shows that males find feminine digit-ratios more attractive in potential mates and similarly females find a more masculine digit-ratio more attractive. There are very few studies relating digit-ratio to attractiveness of features or to how prenatal levels of testosterone might affect which features individuals find to be attractive. We think this might be a potentially rich direction for us to explore.

This summer we plan to examine which traits individuals find most desirable in a potential mate. We want to explore which physical and behavioral traits are most

attractive and how ratings of those traits change with circumstances like conception risk or being in a committed relationship. We will use an evolutionary perspective to organize our thinking in this area. We plan to complete at least one experiment this summer and develop several more that will be completed during the next academic year.

References

- Beall, A. T., & Tracy, J. L. (2013). Women are more likely to wear red or pink at peak fertility. *Psychological Science*, 24(9), 1837-1841.
- Gangestad, S. W., Thornhill, R., & Garver-Apgar, C. E. (2010). Men's facial masculinity predicts changes in their female partners' sexual interests across the cycle, whereas men's intelligence does not. *Evolution and Human Behavior*, 31, 412-424.
- Lefevre, C. E., Lewis, G. J., Perrett, D. I., & Penke, L. (2013). Telling facial metrics: Facial width is associated with testosterone levels in men. *Evolution & Human Behavior*, 34, 273-279.
- Rhodes, G. (2006). The evolutionary psychology of facial beauty. *Annual Review of Psychology*, 57, 199-226.

Dissemination Goals:

We plan to complete data collection on at least one and likely two or more projects during the fall semester. We will present the results of those projects at the spring meeting of the Virginia Psychological Association or Association for Psychological Science depending on the outcomes. The submission deadline for both of these conferences is in January.

The work that we do in this area will inform Professor Goff's choices for readings in his Evolutionary Psychology course in the fall.

Budgetary Needs:

We will have minimal budgetary needs for this project. At this point we anticipate only photocopy expenses, approximately \$100. We plan to use hardware (computers and cameras) and software that are already available on campus to create and edit image, sound, and possibly video files to be used as stimuli in our experiments.

Past Outcomes:

Dennis Goff most recently participated in the Randolph College summer research program with students in summer of 2007 (with Ashley Crippen '08) and 2009 (with Christina Hua '11 and Jillian Barlowe '11). Our work in 2007 was followed-up with an Honors research project by Ashley Crippen and a conference presentation of the results we obtained during the summer at MARCUS in the fall of 2007. The work in 2009 resulted in a poster presentation (peer reviewed) at the Association for Psychological Science (an international conference) in May 2010, a conference presentation by Christina Hua at MARCUS in fall 2010, and an Honors project by Christina Hua. The

results from both Honors papers were presented at the spring meeting of the Virginia Psychological Association.

Statement about Student Researchers:

I will treat Lauren and Sandeep much as I would graduate students in their first year of study. They will work on every step of this project. We will spend the first part of the summer finding and reading relevant research articles. Both students are well equipped to conduct that part of our work. They will have completed the research methods sequence in the Psychology major and enough content courses to know what to expect from this research literature and be ready to develop a deep understanding of it. Our starting point, changing standards of attractiveness with risk for conception, is based on Sandeep's thinking. So he has a head start on the development of that part of our research project.

In addition, both Lauren and Sandeep are enrolled in Research Methods in Psychology II (PSYC 228) this semester where they will begin an exploration of this literature. The course goal of that exploration is a fully developed research proposal. I expect that this work in PSYC 228 will lead to our first research project.

Both students will help to design additional experiments and then collect and develop stimuli (images, sound or video recordings) that will be used in those experiments. It is likely that those stimuli will need digital editing and they will accomplish that by the end of the summer. If we are able to collect data this summer they will do that and then use SPSS to analyze the data that we collect. PSYC 228 (and its prerequisite PSYC 227) will provide the foundational knowledge they need for using SPSS to analyze data.

Both students are interested in expanding their research experience by continuing work on these projects in the fall. They could choose to continue this work in their senior projects. Both students are strong academically with GPA's above [REDACTED]. I believe that they will work productively in this group setting.

Statement from Sandeep Poudyal

I am a sophomore psychology major from Nepal. It would be an extremely exciting experience for me if I could participate in the Summer Research Program. The Summer Research Program provides great opportunities to students in their field of interest and I would like to make use of these opportunities by working with Dr. Goff this summer in this research project. It would look very attractive on my resume and would also help me when I apply to graduate schools. After I graduate from Randolph, I want to go to graduate school and hopefully get a PhD. in psychology. I want to do research in the future and answer question of how and why in psychology. I believe that this summer research will give me an early push towards that direction. I will be able to contribute to this research because I have taken Research Methods I, am taking Research Methods II and am also taking Evolution in the Biology department. In addition, I have also been doing some research on my own on this topic.

I am interested in doing a summer research because I want to work on my research skills. After working with Dr. Goff, I believe I will get a better outlook on the field of research and learn a lot about how doing research in the field of psychology. Evolutionary psychology is an extremely interesting field and it tells us a lot about sexual attraction and mate selection. However, it does not explain homosexuality very well. With this research, I hope to get closer to some answers about heterosexual and homosexual attraction. Dr. Goff has done some research before on digit ratios and we hope that that information will help us reach our goals. There has been some but not a lot of research done in this area. This is why this topic is particularly interesting to me. I believe that if we are successful, we will be able to find information that no one has before. This research requires a lot of hard work and in depth study and if successful could have a very promising future. In addition to doing this research and presenting it in Randolph, we are hoping to present it in National seminars and conferences. Doing this would help me create networks and meet new people.

Statement from Lauren Mason

I am a sophomore intending to major in psychology. I would like to participate in this research project to gain experience conducting research. I am interested in this research project because I think the topic is something everyone should know more about. My involvement in this project would enhance my time at Randolph immensely. It would add significantly to my undergraduate degree and allow me to be more confident when conducting research after my time at Randolph. This project would also serve as a way for me to apply the concepts I have learned in my classes to something that will make a difference in psychological research.

I have not yet decided what area of psychology I want to concentrate on in graduate school and beyond. Participation in this project will help me decide if I want to pursue this area of research further. The prospect of presenting this data at national conferences would establish influential connections and provide valuable experience that I couldn't get many other places.