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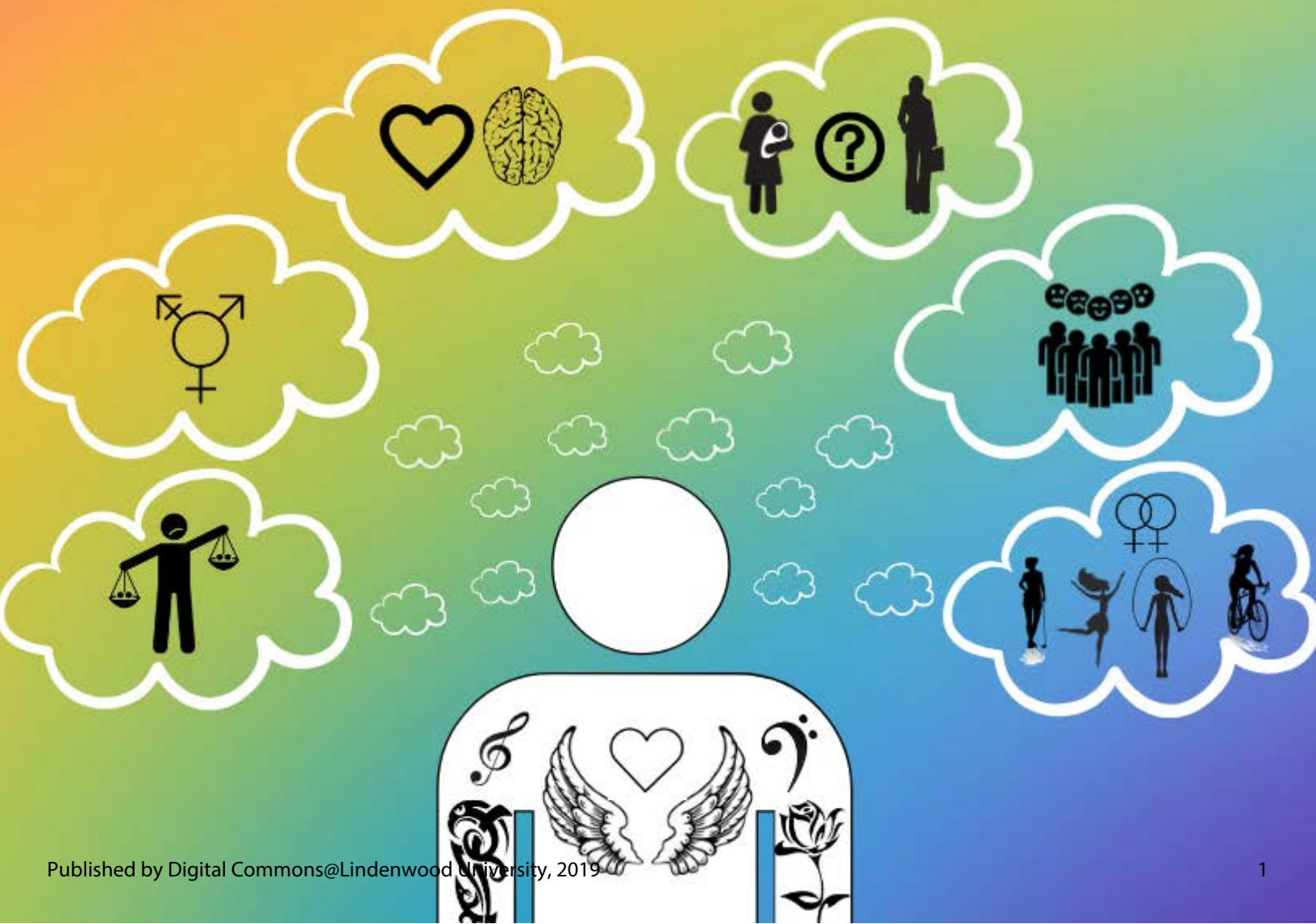
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# 2018-2019 STUDENT RESEARCH JOURNAL

LINDENWOOD UNIVERSITY PSYCHOLOGY DEPARTMENT



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### **Prologue**

I am happy to publish the Spring 2019 Research Methods Journal featuring research papers written by students enrolled in my PSY40400: Advanced Research Methods class in the Spring semester of 2019, as well as of those students who completed their independent or thesis projects with me in the academic year of 2018-2019. Although there are fewer projects published in this year's journal, the topics represented here reflect the student researchers' variable interests and are each as unique as the researchers who completed the projects. This journal's cover design was designed by Baylie Fowler. The design cleverly includes illustrations that represent relevant to all of the papers published in this journal. A special thanks goes out to Libby Schaiff, who served as editor for this journal.

Michiko Nohara-LeClair, PhD

Course Professor

## Perceived Differences in Pitch by Musicians and Non-Musicians

*Kristine Garrett<sup>1</sup>*

*This experiment was conducted to analyze pitch perception in musicians and non-musicians. Previous researchers found that musicians had better pitch perception than non-musicians. Furthermore, violinists were found to perform best on pitch perception tests, whereas pianists and percussionists did not perform as well. Among non-musicians, music listening has been reported to affect the frequencies people are able to hear. Based on these findings, I tested three hypotheses: (1) Musicians will be able to detect small changes in frequency more accurately than non-musicians, (2) Classical musicians who play self-tunable instruments will outperform other musicians and singers, and (3) In non-musicians, the more often they listen to music, the better they will perform on this test. I conducted an in-person study with a between-subjects design to test these hypotheses. The data showed support for the first hypothesis, but not the latter two. Limitations were discovered in sample size, specificity of instructions, reported hearing ability, and design of the experiment. Still, this study was a good indicator of pitch perception, especially for musicians who were able to evaluate their personal skill levels.*

An interesting aspect of the human experience is the ability to discern pitch and use this information to make a mental map of the world. In fact, a condition called congenital amusia, characterized by the inability to recognize changes in pitch, is debilitating not only for musicians, but also for communicating with others and general interaction with and perception of one's surroundings. While all humans have the ability to discern pitch, musicians seem to have honed this skill and demonstrate a greater need for proficiency in this area. Due to this finding in musicianship, there is also the question of extensive music listening and whether that affects

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<sup>1</sup>Kristine Garrett, Department of Psychology, Lindenwood University. I would like to thank Professor Adam Donohue for allowing me to use the recording studio to conduct my study and helping me create my materials, as well as the rest of the Lindenwood University Department of Music for their support during this process. Correspondence concerning this paper should be addressed to Kristine Garrett at Lindenwood University, 209 S Kingshighway St, St. Charles, MO, 63301. Email: keg025@lindenwood.edu

perception and hearing. To explore these ideas, I decided to analyze the ability to perceive minute differences in pitch between and within musicians and non-musicians.

In general, previous research has confirmed that musicians outperform non-musicians in pitch discrimination (Akin & Belgin, 2009; Kishon-Rabin, Amir, Vexler & Zaltz, 2001; Micheyl, Delhommeau, Perrot & Oxenham, 2006; Tervaniemi, Just, Koelsch, Widmann & Schroger, 2005). Musicians are faster and more accurate at detecting changes in pitch, though non-musicians have demonstrated reliable performance. Within musicians, violinists were found to perform the best, since they tune their instruments and must play notes on fretless strings (Tervaniemi et al., 2005). Frets are bars most notably found on the necks of guitars that help the player to find the correct pitch, but violinists, as well as violists, cellists, and upright bassists, do not have the luxury of using frets to find their notes and must memorize pitches. They also work harder to discern pitch because of the high-pitched nature of the violin; subtle differences in pitch are harder to detect in higher frequencies. Tuning one's own instrument has been shown to train the ear to hear fine pitch changes. Pianists did not perform as well as other musicians on this type of test because most pianists do not tune their own piano (Micheyl et al., 2006).

Genre and style have also been shown to affect pitch perception in musicians. Classical musicians tend to outperform contemporary musicians because contemporaries tend to play more percussive and keyboard instruments that do not require tuning (Kishon-Rabin et al., 2001). Level of music education also determines accuracy of pitch discrimination; the more training, the better the performance on this type of test (Akin & Belgin, 2009). Building off this finding, non-musicians who were musicians in their childhood should perform better in this area than non-musicians who have never practiced or studied music. Interestingly, there are no studies that consider pitch discrimination in singers, who are sometimes seen as separate from musicians.

Outside of musicianship, there are age and music listening factors to consider. The ability to discern changes in frequency has been shown to decrease with age, with higher frequencies becoming more difficult to hear (Clinard, Tremblay & Krishnan, 2010). However, in musicians, this age-related decline is delayed due to enhanced cognitive reserve that musicianship promotes (Zendel & Alain, 2011). Moreover, a study comparing auditory performance between participants who regularly listened to music and those who did not found that frequent listeners had more difficulty hearing higher frequencies, but infrequent listeners had more difficulty hearing lower frequencies (Vinay & Moore, 2010). Difficulty hearing high frequencies can be attributed to outer hair cell damage in the ear and/or slowed information processing in the auditory nerve that is commonly seen in age-related decline. To compensate for hearing loss in high frequencies, the ability to hear low frequencies improves.

My experiment will test three hypotheses: (1) Musicians will be able to detect small changes in frequency more accurately than non-musicians, (2) Classical musicians who play self-tunable instruments will outperform other musicians and singers, and (3) In non-musicians, the more often they listen to music, the better they will perform on this test. With these hypotheses in mind, I performed an in-person study with musicians and non-musicians in which they listened to pairs of sound pitches and determined whether the second pitch was higher, lower, or unchanged. To ensure participant confidentiality, only non-identifying demographic information was collected.

## Method

### Participants

Lindenwood University students were recruited for this study by means of the Lindenwood Participant Pool as well as through classroom announcement via the professors of the music department. Students who signed up through the Lindenwood Participant Pool received extra credit for their participation, but there was no use of compensation otherwise and participation was limited to those over the age of 18 with adequate hearing. A total of 36 students participated in the experiment with a mean age of 21.15 ( $SD = 3.70$ ). There were 22 musicians, including 8 participants identifying as male and 14 participants identifying as female, and 14 non-musicians, including 6 participants identifying as male and 8 participants identifying as female. Five non-musicians indicated past musical training but do not currently consider themselves musicians. Within musicians, 10 participants play one or more self-tuned instruments, 6 play percussion or piano, and 4 are vocalists. Concerning genre, 8 participants are classical musicians, 6 are contemporary musicians, and 6 play in both genres. Of the additional 2 musicians, 1 reported below average hearing and the other did not understand the instructions and redid the test, so their data were not used. Across both musicians and non-musicians, 23 participants reported listening to an average of 3 hours of music per day or less and 13 participants reported listening to an average of 4 hr of music per day or more. Participants who listen to non-Western music were also considered due to possible differences in musical culture and perception. Out of all participants, 9 reported listening to non-Western music. Regarding hearing ability, 6 participants reported above average hearing, 28 participants reported average hearing, and 2 participants reported below average hearing.



## Materials

The participants listened to pairs of pitches through calibrated Genelec 8030C speakers inside the Push Records recording studio owned by the Lindenwood University Department of Music. The soundproof studio ensured pure sound quality and reliability and consistency of environment. I used 10 pairs of pitches to test the participant's perception during the experiment, which consisted of a tone followed by another tone that was either raised, lowered, or unchanged. The first five pairs of pitches were sine waves, which are tones that provide consistent amplitude (loudness), and the last five were piano tones. The audio also employs a short track of white noise that plays in the beginning to cleanse the palate of noise heard just before the experiment that may affect performance, such as music or voices. Pitch pairs were gathered and converted with the assistance of Professor Adam Donohue as well as online resources (Bird, 1998; Szynalski, n.d.). Participants used a response sheet during the experiment (see Appendix A) and filled out a demographic survey afterward (see Appendix B).

## Procedure

Participants were tested one at a time within the recording studio. Each participant sat approximately 5 ft. away from the calibrated speakers inside the recording studio, so sound conditions were consistent and optimized for the experiment. Before the experiment, I went over the informed consent form and provided careful instructions for each participant. After this, the speakers, volume set to 70 dB, played 5 s of white noise to begin the experiment. Each pitch was played for 5 s, and after 5 s of silence, the second pitch in the set was also played for 5 s. This was followed by 10 s of silence for the participant to record his or her response on the response sheet. Then, the next pair of pitches would play until all five sine wave pairs were accounted for. After this, the same five pitch pairs were played in randomized order, but this time using tracks

of piano to see if type of sound changed perception. The procedure was the same for these: 5 s for the first pitch, 5 s of silence, 5 s for the second pitch, and 10 s to respond. Once the test was completed, participants were asked to fill out a demographic survey and given a debriefing sheet thanking them for their participation.

## Results

For the first hypothesis, I conducted an independent  $t$ -test to compare the test scores of musicians and non-musicians. Musicians ( $M = 5.25$ ,  $SD = 3.46$ ) performed significantly better on the pitch perception task than non-musicians ( $M = 3.57$ ,  $SD = 2.26$ ;  $t(32) = 2.79$ ,  $p = .004$  (one-tailed)). For the second hypothesis, I conducted an independent  $t$ -test to compare the test scores of classical musicians who play self-tuned instruments and all other musicians. Classical musicians who tune their own instruments ( $M = 5.5$ ,  $SD = 4.3$ ) did not perform significantly better than all other types of musicians ( $M = 5.14$ ,  $SD = 3.36$ ;  $t(18) = .38$ ,  $p = .35$  (one-tailed)). For the third hypothesis, I conducted a Pearson's  $r$  correlation to determine if test scores among non-musicians were related to the average amount of hours they listened to music per day. There was a moderately strong negative correlation between non-musicians' test scores and average amount of hours listened to music per day ( $r(12) = -.51$ ,  $p = .06$ ).

## Discussion

In this study, I tested three hypotheses. My first hypothesis was that musicians would be able to detect small changes in frequency more accurately than non-musicians, and the data supported it, demonstrating that musicianship is associated with pitch perception. My second hypothesis was that classical musicians who play self-tunable instruments would outperform other musicians and singers, but this was not supported. Test scores between the two groups were very close and there was no statistically significant difference between musician types. My

third hypothesis was that in non-musicians, the more often they listened to music, the better they performed on this test. The correlational analysis used to test this hypothesis was approaching statistical significance, but in the opposite direction. The data show that the more often non-musicians listen to music, the lower their scores on the test.

Musicians performed significantly better than non-musicians, and this was supported by a large sample size of participants in both groups. However, within musicians, there were not enough participants to draw conclusions between them based on the instrument(s) the musician studied, nor the genre(s) performed by each musician. Most musicians also played multiple instruments and in multiple genres, so it was difficult to group their data. For my third hypothesis, the data indicated that music-listening and test score are inversely related. This suggests that exposure to music does not help to develop pitch perception. The reason for this finding may be linked to hearing ability, because young adults are often exposed to loud music on a daily basis. Therefore, it is possible that the more they listen to music, the more exposure they have to loud music, which can in turn, affect their hearing, and hence their ability to discriminate slight pitch differences. Building off of this, I analyzed the data obtained from musicians, and found that men had better test scores on average than women. However, women listened to twice as much music on average per day than men. Based on this evidence, future studies in this area may want to conduct a hearing test for the participants to further analyze the relationship between hearing ability and pitch perception.

Sample sizes were not the only limitation of the study. For many participants, the instructions were not specific enough. I mentioned that the participants would be trying to detect differences between pairs of pitches, but many participants thought that the pitch would change dramatically rather than subtly. One participant thought there would be a change of notes (like C

to D), so he marked all answers as “Unchanged.” He asked if he could retake the test, and once he knew how subtle the changes would be, he got a perfect score on the test. He was the only one to get a perfect score on the test, and even participants with over 10 years of musical training experienced similar confusion.

In the future, instructions for the test should be as specific as possible. It would also be interesting to repeat this study with a different design. This study may work better as mixed-factorial design in which musicians and non-musicians take multiple pitch perception tests over the course of different days or weeks. Having different tests each time and testing over different days will help to account for subject-to-order and carryover effects when completing the tests, and participants would likely need to be compensated in order to encourage them to come back for multiple trials. Additionally, having a hearing test at the beginning would help test the idea that hearing ability plays a role in pitch perception. Overall, my study and other studies in this area provide insight into how pitch perception can be trained and honed. This is particularly useful for musicians, who are always seeking to better themselves in their profession. In the future, techniques used in this study could be used to develop effective training programs for musicians to develop their pitch perception, and even non-musicians who need to train their perception.

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## Appendix A

## Pitch Test Response Sheet

After listening to each pair of pitches, indicate on this sheet whether the second pitch is higher, lower, or unchanged.

Pitch Set A

**Pitch Pair 1**      Higher      Lower      Unchanged

**Pitch Pair 2**      Higher      Lower      Unchanged

**Pitch Pair 3**      Higher      Lower      Unchanged

**Pitch Pair 4**      Higher      Lower      Unchanged

**Pitch Pair 5**      Higher      Lower      Unchanged

Pitch Set B

**Pitch Pair 6**      Higher      Lower      Unchanged

**Pitch Pair 7**      Higher      Lower      Unchanged

**Pitch Pair 8**      Higher      Lower      Unchanged

**Pitch Pair 9**      Higher      Lower      Unchanged

**Pitch Pair 10**      Higher      Lower      Unchanged

Appendix B

Demographic Survey

**1. How old are you?**

**2. How would you rate your hearing ability?**

Below Average

Average

Above Average

**3. What is your gender?**

Male

Female

Other

Prefer Not To Say

**4. Have you trained/studied in music during your lifetime?** Yes (Answer 4a) No

**a. How long have you trained/studied (in years)?**

**5. Do you consider yourself a musician?** Yes (Answer 5a and 5b) No

**a. (If musician) Write what instrument(s) you play or if you sing:**

**b. (If musician) Write the genre in which you perform (such as classical, contemporary, opera, etc.):**

**6. How many hours do you listen to music on average per day?**

**7. Do you listen to any non-Western genres of music (J-pop, K-pop, Bollywood, etc)?**

Yes (Answer 7a)

No

**a. Write the genre you listen to:**

## Moral Decision Making

*Baylie Fowler and Tommi Donnelly-Julian<sup>2</sup>*

*This study was conducted to assess the association between implicit biases and moral decision making. Implicit biases can control how we treat people and who we choose to associate ourselves with. We sought to determine if triggering those biases would cause a quantitative increase in moral decision making. We asked participants in the experimental group to complete the Implicit Association Test (IAT; Greenwald, Banajo, & Nosek, 1998a), two parts of the Moral Foundations Questionnaire (Graham, Haidt, & Nosek, 2008) and a demographics questionnaire. No statistically significant differences were found in control vs experimental groups in terms of their morality scores but there was a statistically significant result in that conservatives scored higher than did liberals on the moral of obedience, while everyone scored the highest on the moral of fairness.*

*Keyword: implicit biases*

The present study aimed to test the association between moral decision making and implicit biases. In order to examine these differences, we conducted a study using the Implicit Association Test for race (IAT; Greenwald, Banaji, & Nosek, 1998a), which is a computerized program that required participants to categorize people based on good and bad qualities, as a mediating task between the two sections of the Moral Foundations Questionnaire (MFQ; Graham, Haidt, & Nosek, 2008), which requires them to rate their agreeance on certain actions. By doing this, we hoped to gain insight on how the emphasis or visibility of racial differences impact how we make moral decisions. Additionally, we wanted to quantify moral decision

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<sup>2</sup>Baylie Fowler, Department of Psychology, Lindenwood University. Tommi Donnelly-Julian, Departments of Psychology Criminal Justice, Lindenwood University. Thank you to Abigail Right for her assistance in data collection for this study. Correspondence concerning this paper should be addressed to Tommi Donnelly-Julian at Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301. Email: trd296@lindenwood.edu



making and educate others on how implicit biases can sway moral decision making. The overall purpose of this research was to be better able to understand prejudice and discrimination by revealing the important role of implicit biases on our decisions.

In the research that van Nunspeet, Ellemers, and Derks (2017) conducted, they examined and compared the effects that different social contexts and personal motives had on an outgroup interaction, in this case, of Muslim women. They used the IAT to emphasize the moral implications of their implicit biases, used an outgroup or minimal ingroup member to evaluate the participants, and used a devalued outgroup member from the IAT (a Muslim woman) as an evaluator. The researchers combined the results of the different contexts and motives to determine implicit bias reduction and to determine if they interact with each other (van Nunspeet et al., 2017). They also sought to determine how a reduction in implicit bias is achieved. They also discovered that when the evaluator of the IAT was wearing a headscarf, implicit biases were not as strong as when the evaluator was not wearing a headscarf. That is, when the evaluator was viewed to be an ingroup member (i.e. White), the bias towards Muslim women was significantly higher. Additionally, researchers found that when the evaluator was wearing a headscarf, or perceived as a member of the devalued group, the participants responded slower to the IAT task.

When the implications of the study were emphasized in terms of morality (rather than competence), participants took longer to complete congruent blocks of the IAT (van Nunspeet et al., 2017). This means that when the participants were told that their results were going to be seen in terms of morality, rather than in competence, participants took longer, and therefore thought harder, on the IAT. One last finding was that for those who had the emphasized competency task instead of the morality task, there were significantly stronger negative biases towards Muslim women when the evaluator was wearing a headscarf. Overall, van Nunspeet et

al. (2017) revealed that IAT performance evaluation by a woman wearing a headscarf significantly impacted the reductions of non-Muslim's implicit biases toward Muslim women. In the condition of morality, participants showed significantly reduced implicit biases towards the outgroup member rather than the competence condition. Again, when emphasizing morality, there was no significant difference between those with or without an ingroup evaluator.

van Nunspeet, Ellemers, and Derks (2015) discuss in a previous study that implicit associations are changeable, and that people can alter them if they are motivated enough to do so. They found that by reminding people that their behavior has moral implications, their tendency to express implicit biases decreased, and that people appear to value morality more than competence groups (van Nunspeet et al., 2015). In a task that asked participants to think not about the past but to evaluate their own views on interethnic relations and egalitarian goals, implicit biases significantly decreased (van Nunspeet et al., 2015).

Another article by van Nunspeet, Ellemers, Derks, and Nieuwenhuis (2014) revealed similar results in that participants who took part in this study were told they would take the IAT and about what the results could mean about their behavior either as competence or moral values, then completed it in private. Participants who were in the morality condition showed significantly less implicit bias toward Muslim women than those who participated as a part of the competence condition, leading researchers to believe that people want to behave in ways that are consistent with their own values and how they perceive themselves morally rather than competently (van Nunspeet et al., 2014). Another study found that sharing moral values with others significantly impacts our identities and regulates our behavior (Pagliaro, Ellemers, & Barreto, 2011). This showed, similarly to van Nunspeet et al. (2017), that people place much value on being seen as moral by their ingroup members over being seen as competent (Pagliaro

et al., 2011). Together, these three studies revealed much about implicit biases and their impact on morality, including that participants want to be rated favorably by ingroup members and thus will express less implicit bias, that they want to match their own morals and will show less implicit bias accordingly, and that when prompted to think about their own morals participants tend to decrease implicit biases (Pagliaro et al., 2011; van Nunspeet et al., 2014; van Nunspeet et al., 2015).

There are many reasons that implicit biases are important to note, as they can affect our lives and how we treat others (Bruchmann, Koopmann-Holm, & Scherer, 2018; Stark, 2014; van Nunspeet et al., 2014; van Nunspeet et al., 2015; van Nunspeet et al., 2017). Additionally, it has been claimed that people act in ways related to their moral stances, and that people with strong moral ethics act more prosocially than those who do not (Capraro & Rand, 2018). Several studies have mentioned the way that humans tend to treat people they perceive as ingroup (their own group) better than those they perceive as outgroup (those in other groups) in different areas, including race and political affiliation (Bruchmann et al., 2018; Stark, 2014; van Nunspeet et al., 2014; van Nunspeet et al., 2015). One example of this was given by Stark (2014) in that many physicians tend to have an implicit association with Black individuals as being bad and White individuals as being good, which may affect the treatments that they receive. For example, Black patients tend to be less aggressively treated for heart attack symptoms than white patients. This differential treatment, Stark (2014) says, occurs not only in the case of heart attacks, but also many other areas of healthcare in general and can shorten the lifespans and decrease the quality of life for people of color. Stark (2014) also mentions that although people have explicit or known preferences for their own ingroups, she found that even Black Americans have an implicit association with White and good, an implicit preference for White Americans. Stark (2014) says

that while we may not be able to entirely remove or alter implicit associations, we can choose how we deal with them and attempt to retrain ourselves to be morally virtuous, as she says Aristotle wrote about in his works. By controlling our emotions and how we react to the feelings we may encounter when experiencing biases, we can reduce our overall prejudiced and discriminatory actions (Stark, 2014).

The IAT website also states that while the IAT may not be a perfect indicator of individual actions related to implicit biases, on a societal level those implicit biases build up (Greenwald et al., 1998b). It also says the IAT can give information to predict certain discriminatory behaviors, such as who will be hired or promoted within a company. This is not always the case, but for those who are not in the ingroup of the people they work for or with, or who interact with people in their outgroups on a daily basis, these biases can make a difference in their treatment and those around them. Additionally, they give some tips on reducing the implicit biases we may not want. Some ways the IAT website says we can reduce implicit biases include being consciously kinder and friendlier to those we have a known bias against or considering the things we watch on TV and experience in daily life and altering those to portray others in a more positive light (Greenwald et al., 1998b).

In a study that looked at similarity-liking effect in politics, Bruchmann, Koopmann-Holm, and Scherer (2018) sought to test how knowing someone's political orientation from a political post can influence impressions and lead to certain consequences. The similarity-liking effect is the hypothesis that people prefer other people who are similar to them, whether that similarity is significant or not (Bruchmann et al., 2018). We also tend to like people more if they change their attitudes or beliefs to better fit with our own. Bruchmann et al. (2018) claim that the similarity-liking effect is especially strong for political affiliations and that we tend to make

everyday life decisions based on the political affiliations of others, such as sharing an office space or having a romantic relationship. Like everything else, there are stereotypes that come along with political affiliation, such as that Democrats are viewed to be warmer and have their faces show more happiness and Republicans are viewed to be more competent and have angrier faces. Bruchmann et al. (2018) used the Moral Foundations Theory (Graham et al., 2013), which explains the different categories of moral ethics and their meanings, to show that liberals tend to endorse individualizing foundations such as promoting fairness and preventing harm, whereas conservatives are more likely to support loyalty, respect of authority, and purity. The researchers predicted that when a person learns of another's political affiliation, they are more likely to make judgements based on those foundations and stereotypes (Bruchmann et al., 2018).

In the study, Bruchmann et al. (2018) had participants view the fabricated Facebook profile of a man and woman who either recently shared a pro-Republican or pro-Democratic post. Then participants rated how smart and likeable they thought the profile user was and indicated how likely it was that they would become friends with the fabricated person. Participants also completed a modified version of the MFQ. Scores for the MFQ were calculated based on two types of foundations: individualizing foundations, such as fairness and harm, and binding foundations, like loyalty, authority, and purity. Overall, Bruchmann et al. (2018) found that the similarity-liking effect was significant when Democrats were rating others based on their perceived level of harm and fairness moral foundations. They discovered that Republicans were not significantly likely to rate other Republicans more favorably based on higher ratings of loyalty, authority, and purity moral foundations (Bruchmann et al., 2018). They also found a positive association between the fabricated Democratic profile and individualizing foundations and the fabricated Republican profile and binding foundations, supporting the previous research

that stated that the two would be consistent. Similarity-liking effect tends to happen in ingroup situations, or when people are surrounded with those they feel are closely related to in some characteristic (Bruchmann et al., 2018). Implicit biases are underlying attitudes that are formed against those in the outgroup, or people who are dissimilar to the ingroup. Triggering those implicit biases has been shown to remind people that their decisions have moral consequences and can in fact cause them to alter their actions in due course (van Nunspeet et al., 2015). A separate study performed by Scheepers, Te Crotenhuis, and Van Der Silk (2002) found that these moral attitudes can be impacted by individual education level and religiosity, meaning that over time moral attitudes could change. This is significant because as moral attitudes and implicit biases change, our behaviors may change with them (Stark, 2014; van Nunspeet et al., 2015).

The present research is looking to combine the previous studies findings into one research design. We are using one part of the MFQ as a baseline and then having the experimental group take the IAT, hopefully triggering their implicit biases. The second part of the MFQ will then be taken and scored to determine if there are any differences in moral decision-making. Based on the previous literature, we have developed two hypotheses for the present study regarding moral decision making and implicit associations, as well as the relationship between political affiliation and morality. We hypothesized that participants in the experimental group will have higher scores on the second portion of the MFQ after taking the IAT, but those in the control group will not. We also hypothesized that participants who identify as conservative will score higher on obedience morals and those identifying as liberal will score higher on fairness morals.

## **Method**

### **Participants**

Anyone who signed up through Sona Systems (see Appendix A) as part of the Lindenwood Participant Pool (LPP) and anyone who signed up through SignUpGenius were eligible to participate in the study. The LPP consists of students that are in introduction level classes of sociology, anthropology, and criminology and criminal justice, and all courses in psychology. We posted a script on social media (see Appendix B) and hung flyers in Young Hall at Lindenwood University (see Appendix C). All participants were 18 or older and thus gave informed consent prior to participating. We collected demographics such as age, gender, race/ethnicity, year in school, and political affiliation. Those who participated through the LPP were compensated with three LPP credits which are used for extra credit in their participating class.

All participants were students at Lindenwood University and all class statuses were represented (freshman-senior). Our sample included 20 women and 4 men. Our sample included 17 people who identified as White, 2 who identified as biracial/mixed, 2 who identified as Black, 1 who identified as Hispanic, 1 who identified as Latino, and 1 who identified as Asian American. The ages of our participants ranged from 18-36, with an average of 20.3.

### **Materials and Procedure**

After signing up through the appropriate pathway, the participants were first given the study information sheet (see Appendix D) and the informed consent form (see Appendix E). These outlined the study and the requirements for the participants if they wish to continue with the study. The forms also made it clear that participants could drop out of the study at any time and offer the principal researchers' contact information.

The MFQ (Graham et al., 2008; see Appendix F) was given after the informed consent. This asked a series of questions regarding taking others' feelings into account when making decisions and a series of situations for which they rated their agreeance (Graham et al., 2008). The participants were given one half of the 32 questions of the MFQ-30. After thoroughly reading the directions and completing half of the questionnaire, the participants either solved a series of scrambled words (see Appendix G) or moved to the computer to complete the Implicit Association Test for race (IAT; Greenwald et al., 1998a; see Appendix H). This tests for implicit biases, or unconscious feelings that arise in situation situations. At the end of the IAT, the participants were automatically given their computerized results about which race they show more of an inclination for (Black or White), if any inclination at all. The participants who completed the scrambled words were given the answer key (see Appendix G) and time to grade it themselves. We did not see these results of either the IAT or the scrambled words. The participants then completed the second set of 16 questions of the MFQ-30 (see Appendix F), completing the study. The participants then completed the demographics survey (see Appendix K). We then debriefed the participants and answered any questions they had.

After each group of participants have completed the study, we scored each half of the MFQ-30 using the scoring key (Graham et al., 2008; see Appendix F) and compared them to see what differences had arisen after the IAT was completed in comparison to the control group (the scrambled words). We also analyzed whether political affiliation had any correlation to the results of the MFQ-30.

## **Results**

We hypothesized that participants who took the IAT would score higher on the second portion of the MFQ. To determine if our data supported our hypothesis, we ran an independent



samples *t*-est. The results of our independent samples *t* test on MFQ (Graham et al., 2008) difference scores between experimental ( $M = -2.83$ ,  $SD = 12.38$ ) and control groups ( $M = -0.25$ ,  $SD = 6.41$ ) revealed no statistically significant difference  $t(17) = -0.64$ ,  $p = .26$ . It should be noted that although there was no statistically significant difference between the control and experimental groups, the mean of the control group's difference scores was close to zero. In our current study, the difference found between the two tests was not significant, but this may be because we had a small sample size.

Additionally, we hypothesized that participants who identified as liberal would score higher than participants who identified as conservative on the moral of fairness. The results of our independent samples *t* test revealed no statistically significant difference in the fairness scores of liberal participants ( $M = 24.11$ ,  $SD = 2.26$ ) and conservative participants ( $M = 21.83$ ,  $SD = 4.07$ ),  $t(7) = 1.25$ ,  $p = 0.13$ . We also hypothesized that participants who identified as conservative would score higher on the moral of obedience than liberal participants. The independent samples *t* test revealed a statistically significant difference between the obedience scores of liberal participants ( $M = 14.11$ ,  $SD = 4.4$ ) and those of conservative participants ( $M = 19.67$ ,  $SD = 5.09$ ),  $t(10) = -2.19$ ,  $p = 0.03$ . The results of our study showed that nearly all participants scored higher on the moral of fairness and there was no significant difference in fairness scores of liberal and conservative participants. Obedience scores were significantly different, with conservatives scoring significantly higher on this moral than liberals.

## Discussion

While there were no statistically significant results for the question of triggering a higher morality score, we did find statistical significance in the way conservatives scored higher on the obedience moral than did liberals. As in all studies, the present study faced some limitations.

Firstly, we have a limited sample of 24 participants, all of whom attend classes at Lindenwood University St. Charles. This is potentially limiting as it is a small sample size and represents a small subsection of the population. Of our student participants, most were also White women under the age of 30, which further limits the potential for a representative sample. Second, we also recognized a few errors within the study itself. We recognized that there were two errors in the set of word scrambles we created, one with a missing letter and one with an extra letter. We do not believe that these impacted our results in any way because we did not collect information on the scoring of the word scrambles, but it is a factor that we would want to fix if we continue this research in the future.

We also did not find statistically significant results in difference scores on the MFQ between participants who took the IAT and those who completed word scrambles. We believe that if we were able to collect data from more participants, a difference would emerge. It should be noted that in participants who took the IAT, the difference scores were larger than those in the control group, but since the scores both increased and decreased and the difference was not statistically significant, our hypothesis was not supported. This could also be due to the structure of the MFQ itself, as we now believe it differs more at an individual basis. We also found that all but two participants scored higher on the moral of fairness than the moral of obedience. We did not have a hypothesis about this, but overall fairness scores were higher among both liberal and conservative participants than obedience scores. Scores on the obedience moral were significantly higher among conservative participants. We would also be interested in seeing if different measures of bias, such as explicit questions about their biases instead of an implicit biases test, have a larger impact on people than IAT, or if we brought up actual discrimination by asking about their real experiences with discrimination rather than implicit biases.

Implications of this study are limited because of our small sample size and lack of statistically significant results. We hoped to be able to identify a change in morality scores based on the IAT (Greenwald et al., 1998a) bringing implicit biases to the attention of participants in the experimental group. This would have implied that our knowledge of previously unknown biases could correlate with a change in decision making, meaning our behaviors can change based on knowledge of our implicit biases. We believe it is possible that the small sample size did not allow us to collect enough data to obtain significant results, and that if future researchers replicating this study recruited more participants, they might find more statistically significant results. Additionally, we would have liked to obtain a more diverse sample of participants, considering the majority of our participants were mostly White women under the age of 25. We think that our lack of diversity and small sample size are what led to our insignificant results in difference scores. While we did not find support for all of our hypotheses, we gained insight into how to improve this study for future inquiries into this topic. In the future, we would hope to find a more statistically significant difference in the scores of those participants whose implicit biases are triggered. We think it's important to also consider the possibility of adding a task that asks about explicit biases as well, which might lead to a more statistically significant result. As this study is replicated by either us or a broader range of researchers, the more refined the study will become and hopefully, the more information can be garnered.

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## Appendix A

### Sona Systems Script Information (For LPP)

Title: Moral Decision Making

Brief Abstract: You will be asked to engage in a demographics survey, an online activity, and a questionnaire (split in two parts), this will take 25 minutes.

Detailed Description: For this study you will be asked to complete the first half of a questionnaire consisting of questions asking you to rate how strongly you agree with the ideas presented. Then, you will complete a short activity (either solving word scrambles or completing an online reaction test). You will then be asked to complete the second half of the same questionnaire. Finally, you will be asked to complete a short paper demographics survey.

## Appendix B

## Social Media Script

Hello, I am trying to recruit participants for a study we're conducting at Lindenwood University. If you are a Lindenwood Student, please read below to determine if you're interested in participating. You'll be asked to complete a demographics survey and a morality questionnaire on paper. You will also be asked to complete a short online activity. This should take about 25 minutes. You will not be able to see your individual morality test results but will be allowed access to the final group results at the end of the study, if you so desire. Please visit <https://www.signupgenius.com/go/508054AA4AE22A0FC1-moral> for an appointment.

Appendix C

Flyer

**LINDENWOOD UNIVERSITY**

# **MORAL DECISION MAKING STUDY**

*Please sign up at  
<https://www.signupgenius.com/go/508054AA4AE22A0FC1-moral> OR sign up on Sona Systems if you are involved in the LPP!  
For questions or more information, contact Baylie Fowler at [bnf576@lindenwood.edu](mailto:bnf576@lindenwood.edu) or Tommi Donnelly-Julian at [trd296@lindenwood.edu](mailto:trd296@lindenwood.edu)*

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**YOU WILL BE ASKED TO COMPLETE A MORALITY QUESTIONNAIRE, AN ONLINE ACTIVITY OR VIDEO, AND A SHORT DEMOGRAPHICS SURVEY. IT SHOULD TAKE 20-30 MINUTES!**



## Appendix D

### Research Information Sheet

# LINDENWOOD

### Research Information Sheet

You are being asked to participate in a research study. We are doing this study to determine if moral decision making changes after taking the Implicit Association Test for race (Greenwald et al., 1998). During this study you will complete the Moral Foundations Questionnaire (Graham et al., 2008), move onto an online activity, and then complete the second half of the Moral Foundations Questionnaire. It will take about 25 minutes to complete this study.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

If you are in the LPP you will receive three LPP credits in the course for which you signed up for the LPP. You will receive extra credit simply for completing this information sheet. You are free to withdraw your participation at any time without penalty. Participants who are not part of the LPP will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the

researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

**Who can I contact with questions?**

If you have concerns or complaints about this project, please use the following contact information:

Tommi Donnelly-Julian, [trd296@lindenwood.edu](mailto:trd296@lindenwood.edu)

Dr. Michiko Nohara-LeClair, [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or [mleary@lindenwood.edu](mailto:mleary@lindenwood.edu).

# LINDENWOOD

## Research Study Consent Form

### Moral Decision Making

Before reading this consent form, please know:

- Your decision to participate is your choice
- You will have time to think about the study
- You will be able to withdraw from this study at any time
- You are free to ask questions about the study at any time

After reading this consent form, we hope that you will know:

- Why we are conducting this study
- What you will be required to do
- What are the possible risks and benefits of the study
- What alternatives are available, if the study involves treatment or therapy

- What to do if you have questions or concerns during the study

*Basic information about this study:*

- You will be asked to complete an online activity or watch a video about biases, a demographics survey, and two parts of a questionnaire about your values.
- We are interested in learning about the effects of biases on moral values
- Risks of participation include mild discomfort about results of an online activity

Appendix E

Informed Consent Form

# LINDENWOOD

## Research Study Consent Form

### Moral Decision Making

You are asked to participate in a research study being conducted by Tommi Donnelly-Julian, Baylie Fowler, and Dr. Michiko Nohara-LeClair at Lindenwood University. Being in a research study is voluntary, and you are free to stop at any time. Before you choose to participate, you are free to discuss this research study with family, friends, or a physician. Do not feel like you must join this study until all of your questions or concerns are answered. If you decide to participate, you will be asked to sign this form.

#### **Why is this research being conducted?**

We are doing this study to find out if being made aware of biases influences decision making about morals and values.

#### **What am I being asked to do?**

You will complete the first half of a paper questionnaire in which you will decide how much you agree with ideas presented, (about 16 questions), then move on to the computer for an online activity (watching

a short video or completing a reaction test). Then, you will complete the second half of the same paper questionnaire. Finally, you will be asked to complete a short paper demographics survey.

**How long will I be in this study?**

It will take about 25 minutes.

**What are the risks of this study?**

- Privacy and Confidentiality:

We will not be collecting any information that will identify you.

We will be collecting data from you using the internet. We take every reasonable effort to maintain security. The online activity is completely anonymous and does not use the data to identify the participants who participate. It is always possible that unidentifiable information during this research study may be taken and used by others not associated with this study.

**What are the benefits of this study?**

You may benefit from this study. The potential benefits are having access to an online source that can be used to identify your personal implicit biases. This offers a tool that may not have otherwise been known to you. You will also become more aware of your own biases as well.

**Will I receive any compensation?**

If you are in a course that is participating in the LPP and you signed up on Sona Systems, you will receive three LPP credits for participating in this study.

**What if I do not choose to participate in this research?**

It is always your choice to participate in this study. You may withdraw at any time. You may choose not to answer any questions or perform tasks that make you uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of LPP credits. If you would like to withdraw from the study, please use the contact information found at the end of this form. If you are a student of a course participating for LPP credit, you will still receive full credit even if you withdraw from the study.

**What if new information becomes available about the study?**

During the course of this study, we may find information that could be important to you and your decision to participate in this research. We will notify you as soon as possible if such information becomes available.

**How will you keep my information private?**

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

**How can I withdraw from this study?**

Notify the research team immediately if you would like to withdraw from this research study.

**Who can I contact with questions or concerns?**

If you have any questions about your rights as a participant in this research or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the Lindenwood University Institutional Review Board Director, Michael Leary, at (636) 949-4730 or [mleary@lindenwood.edu](mailto:mleary@lindenwood.edu). You can contact the researcher, Tommi Donnelly-Julian directly at 417-684-3427 or [trd296@lindenwood.edu](mailto:trd296@lindenwood.edu). You may also contact Dr. Michiko Nohara-LeClair at [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu).

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

---

**Participant's Signature**

---

**Date**

---

**Participant's Printed Name**



---

**Signature of Principle Investigator or Designee**

---

**Date**

---

**Investigator or Designee Printed Name**

Appendix F

Moral Foundations Questionnaire (Graham, Haidt, & Nosek, 2008) PART 1

*Part 1. When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:*

[0] = not at all relevant (This consideration has nothing to do with my judgments of right and wrong)

[1] = not very relevant

[2] = slightly relevant

[3] = somewhat relevant

[4] = very relevant

[5] = extremely relevant (This is one of the most important factors when I judge right and wrong)

\_\_\_\_\_ 1. Whether or not someone suffered emotionally

\_\_\_\_\_ 2. Whether or not some people were treated differently than others

\_\_\_\_\_ 3. Whether or not someone's action showed love for his or her country

\_\_\_\_\_ 4. Whether or not someone showed a lack of respect for authority

\_\_\_\_\_ 5. Whether or not someone violated standards of purity and decency

\_\_\_\_\_ 6. Whether or not someone was good at math

\_\_\_\_\_ 7. Whether or not someone cared for someone weak or vulnerable

- \_\_\_\_\_8. Whether or not someone acted unfairly
- \_\_\_\_\_9. Whether or not someone did something to betray his or her group
- \_\_\_\_\_10. Whether or not someone conformed to the traditions of society
- \_\_\_\_\_11. Whether or not someone did something disgusting
- \_\_\_\_\_12. Whether or not someone was cruel
- \_\_\_\_\_13. Whether or not someone was denied his or her rights
- \_\_\_\_\_14. Whether or not someone showed a lack of loyalty
- \_\_\_\_\_15. Whether or not an action caused chaos or disorder
- \_\_\_\_\_16. Whether or not someone acted in a way that God would approve of

*Part 2. Please read the following sentences and indicate your agreement or disagreement:*

[0]	[1]	[2]	[3]	[4]	[5]
Strongly	Moderately	Slightly	Slightly	Moderately	Strongly
disagree	disagree	disagree	agree	agree	agree

- \_\_\_\_\_17. Compassion for those who are suffering is the most crucial virtue.
- \_\_\_\_\_18. When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.
- \_\_\_\_\_19. I am proud of my country's history.
- \_\_\_\_\_20. Respect for authority is something all children need to learn.

- \_\_\_\_\_21. People should not do things that are disgusting, even if no one is harmed.
- \_\_\_\_\_22. It is better to do good than to do bad.
- \_\_\_\_\_23. One of the worst things a person could do is hurt a defenseless animal.
- \_\_\_\_\_24. Justice is the most important requirement for a society.
- \_\_\_\_\_25. People should be loyal to their family members, even when they have done something wrong.
- \_\_\_\_\_26. Men and women each have different roles to play in society.
- \_\_\_\_\_27. I would call some acts wrong on the grounds that they are unnatural.
- \_\_\_\_\_28. It can never be right to kill a human being.
- \_\_\_\_\_29. I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing.
- \_\_\_\_\_30. It is more important to be a team player than to express oneself.
- \_\_\_\_\_31. If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty.
- \_\_\_\_\_32. Chastity is an important and valuable virtue.

#### Moral Foundations Questionnaire (Graham, Haidt, & Nosek, 2008) SCORING GUIDE

To score the MFQ yourself, you can copy your answers into the grid below. Then add up the 6 numbers in each of the five columns and write each total in the box at the bottom of the column. The box then shows your score on each of 5 psychological "foundations" of morality. Scores run from 0-30 for each foundation. (Questions 6 and 22 are just used to catch people who are not paying attention. They don't count toward your scores).

Question #	Your Response	Question #	Your Response	Question #	Your Response	Question #	Your Response	Question #	Your Response
1		2		3		4		5	
7		8		9		10		11	
12		13		14		15		16	
17		18		19		20		21	22
23		24		25		26		27	
28		29		30		31		32	

Harm / Care	Fairness / Reciprocit	In-group/ Loyalty	Authority / Respect	Purity / Sanctity

The average politically moderate American's scores are: 20.2, 20.5, 16.0, 16.5, and 12.6.

Liberals generally score a bit higher than that on Harm/care and Fairness/reciprocity, and much lower than that on the other three foundations. Conservatives generally show the opposite pattern.

The Moral Foundations Questionnaire (MFQ-30, July 2008) by Jesse Graham, Jonathan Haidt, and Brian Nosek.

## Appendix G

## Word Scrambles

The following strings of letters can be rearranged to form one word per line. Please do your best to solve as many of these word scrambles as possible in the time allotted.

aaboerylrt = \_\_\_\_\_

babirt = \_\_\_\_\_

cdrboadr = \_\_\_\_\_

chocu = \_\_\_\_\_

dsyai = \_\_\_\_\_

eehacht = \_\_\_\_\_

fofcee = \_\_\_\_\_

gethispat = \_\_\_\_\_

isroscss = \_\_\_\_\_

jckeat = \_\_\_\_\_

keapesr = \_\_\_\_\_

kesna = \_\_\_\_\_

koneym = \_\_\_\_\_

lhaew = \_\_\_\_\_

ltopap = \_\_\_\_\_

luipt = \_\_\_\_\_

neplic = \_\_\_\_\_

nikcehc = \_\_\_\_\_

niktit = \_\_\_\_\_

nlio = \_\_\_\_\_

omisiusr = \_\_\_\_\_

paeccuak = \_\_\_\_\_

rimror = \_\_\_\_\_

ritge = \_\_\_\_\_

ssemgea = \_\_\_\_\_

taneelph = \_\_\_\_\_

tleepnoh = \_\_\_\_\_

ttleob = \_\_\_\_\_

viome = \_\_\_\_\_

aaboerylrt = laboratory

babirt = rabbit

cdrboadr = cardboard

chocu = couch

dsyai = daisy

eehacht = cheetah

fofcee = coffee

gethispat = spaghetti

isrosccs = scissors

jckeat = jacket

keapesr = speaker

kesna = snake

koneym = monkey

lhaew = whale

ltopap = laptop

lupt = tulip

neplic = pencil

nikcehc = chicken

niktit = kitten

nlio = lion

omisiusr = Missouri

paeccuak = cupcake

rimror = mirror

ritge = tiger

ssemgea = message

taneelph = elephant



tleepnoh = telephone

ttleob = bottle

viome = movie

Appendix H

Implicit Association Test (Greenwald, Banaji, & Nosek, 1998)

<https://implicit.harvard.edu/implicit/takeatest.html>

Appendix K

Demographics Survey

Please answer the following questions to the best of your ability.

1. What race/ethnicity do you identify as?

---

2. What is your gender identity?

---

3. What year in school are you?

- a. Freshman

- b. Sophomore

- c. Junior

- d. Senior

- e. Other \_\_\_\_\_

4. How many years have you attended Lindenwood University?

---

5. What is your political affiliation?

- a. Conservative

- b. Moderate

c. Liberal

d. Other

e. Prefer not say

6. What is your age?

---

## Tattoos in the Workplace

*Megan Hamilton<sup>3</sup>*

*This study looked at the current stance of the general public on acceptability of visible tattoos in the workplace. Participants included ages 18 to 66, which were recruited from Facebook, Twitter, and Reddit. Participants took part in an online Qualtrics survey consisting of 25 questions. These questions involved demographics, opinions on acceptability of tattoos in the workplace, factors taken into thought when deciding if tattoos should be acceptable in the workplace, as well as questions relating to stereotypes of people that have tattoos. My hypotheses were 1) More people will claim tattoos are acceptable than they are unacceptable in the workplace; 2) The participants age, gender, and whether they have tattoos themselves will factor into their perception of acceptability of tattoos in the workplace; 3) Other factors such as type of workplace, as well as placement and size of the tattoo will factor into the perception of acceptability of tattoos in the workplace; 4) People hold negative stereotypes against people with tattoos. The results showed that 86.4% of participants said tattoos are more acceptable in some workplaces than others. In regard to negative stereotypes toward people with tattoos, 82% did not hold any negative stereotypes, and less than 1% held strong negative stereotypes. This study can help current youth as well as anyone going into a new workplace decide if they should get a tattoo, or on placement of their tattoo. It can also help current employers reexamine at their policy on tattoos based on the current norms of society.*

*Keywords: tattoos, workplace, acceptability*

When it comes to the workplace, it is generally required by business owners to have any and all tattoos be covered up so that they are not visible to other employees or customers. For example, from personal experience of working at QuikTrip, their policy includes that all tattoos must be covered. They say this is a requirement, due to the fact that visible tattoos are not considered the current “norm” of society, and that until they become said norm, the policy will

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continue to be that tattoos are completely covered. However, from my current experience of working at Target, their policy does not require employees to cover any tattoos, no matter the placement. Considering that both companies are fairly big and successful, it brought up the question of whether or not the general public minded if employees of different companies had visible tattoos while on the job. A follow-up question then occurred of whether or not the general public attaches stigmas to people with tattoos or not, and if so, if this is the reason why they do not want to see tattoos on an employee. These questions are what brought up the interest in conducting my study.

Previous research shows that even though people are beginning to agree that tattoos are becoming more acceptable in general, these same people still have negative stereotypes against people with tattoos (Martin & Dula, 2010). The increase in popularity to get tattoos was said to be at 40% in 2007, and .5% in 1957 (Hawkes, Senn, & Thorn, 2004; Martin & Dula, 2010). Due to this increase in popularity and in acceptability, youth are continuing to get tattoos even though there are negative stereotypes against people with tattoos.

Some of these negative stereotypes were specified in a study by Degelman and Price (2002), in which participants rated people with tattoos as less honest, attractive, and motivated than people without tattoos. Resnehoeft, Villa, and Wiseman (2008) also conducted a study dealing with stereotypes against people with tattoos – to which their results show that people with tattoos are found to be less intelligent and attractive than people without tattoos. Even with the awareness that most individuals, including employers, have a negative stigma against people with tattoos, younger people, such as college students, are still continuing to get tattoos (Foltz, 2014). Although these young people are continuing to get tattoos even with the negative stigmas based around them, they are more cognizant of what part of their body they decide to place the tattoo (Foltz, 2014). For example, instead of getting the tattoo on a visible part of their body such as their wrist, they may instead get the tattoo on their side, which is generally always covered.

Some workplaces are considered to be more acceptable to have visible tattoos than others. Dean (2010) conducted a study on this topic, and his results indicate that visible tattoos were seen to be unacceptable on white-collar workers, yet acceptable on blue-collar workers by the general public. His results also claim that people with tattoos themselves were more acceptable of tattoos being visible in the workplace and vice versa (Dean, 2010). Employers in general tend to have a widespread view that tattoos are completely unacceptable to have visible at any workplace (Dale, Bevill, Roach, Glasgow, & Bracy, 2009). Though, places like Target do not seem to mind visible tattoos, which goes against these findings.

There is evidence showing that tattoos have actually helped in the workplace, in that they are big conversation starters for employees and the customers of the establishment (Ellis, 2015). This can help develop a rapport between the two, and therefore make the outing more pleasant for both parties. Ellis (2015) suggested that businesses that do not allow tattoos to be visible need to change their ways because disallowing tattoos to be shown can drive away customers and potential employees. This can be seen to be increasingly true, especially with the findings that the younger generations are shown to have a bigger popularity with getting and having tattoos (Martin & Dula, 2010). With this increase in popularity comes a new wave of what is acceptable to the general public, which means that the norms could be changing to more acceptability of tattoos in general.

In my research, an online survey was conducted asking the general public who were at least 18 years of age their opinions of people with tattoos, as well as different situations regarding visible tattoos in the workplace. These situations involved things such as location of the tattoo, acceptable establishments/positions for visible tattoos, as well as type of tattoos that were considered with acceptable or unacceptable in a workplace setting. I hypothesized that 1) More people will claim tattoos are acceptable than they are unacceptable in the workplace; 2) The participants age, gender, and whether they have tattoos themselves will factor into their perception of acceptability of tattoos in the workplace; 3) Other factors such as type of workplace, as well as placement and size of the tattoo will factor into the

perception of acceptability of tattoos in the workplace; 4) People hold negative stereotypes against people with tattoos.

## **Method**

### **Participants**

In my online Qualtrics study, I had 774 participants, whom I recruited through Facebook, Twitter, and Reddit. Of these participants, 409 identified as female, 268 identified as male, and 97 identified as other. Other consisted of transgender, nonbinary, or cisgender without defining whether they were cis-male or cis-female. The age range of participants was from 18 to 66 – of this age range, 748 were under age 50 and 18 were over age 50. There was no compensation offered to the participants that participated in my study.

### **Materials and Procedure**

I created an online survey through Qualtrics consisting of 25 questions (see Appendix A for survey). The first question of the survey included the informed consent which stated the purpose of my study, how long it would take to complete the survey, the fact that participation was completely voluntary, and contact information if they had any questions. The rest of the survey included questions regarding age and gender, as well as questions regarding the acceptability of tattoos in the workplace and stereotypes towards people with tattoos. The questions on stereotypes towards people with tattoos stemmed from the questions produced in Martin and Dula's (2010) study.

After all data collection was complete, I exported my data from Qualtrics into Excel. From there, I coded my data with the help of my assistants. Following this, I analyzed my data using descriptive statistics on Excel and Qualtrics.



## Results

I hypothesized that 1) More people will claim tattoos are acceptable than they are unacceptable in the workplace; 2) The participants age, gender, and whether they have tattoos themselves will factor into their perception of acceptability of tattoos in the workplace; 3) Other factors such as type of workplace, as well as placement and size of the tattoo will factor into the perception of acceptability of tattoos in the workplace; 4) People hold negative stereotypes against people with tattoos. I used COUNTIF equations in Excel to analyze my data, as well as Qualtrics to see how many people responded with different answers most frequently.

Unfortunately, I was unable to fully answer my first three hypotheses. This being due to my mistake of not asking a general question about tattoos being acceptable in the workplace; rather I asked if having tattoos was more acceptable in some workplace settings than others. This being so, in order to somewhat give results towards my first three hypotheses, I used the responses to the question “Having tattoos is more acceptable in some workplace settings than others” to compare to the different demographics and factors included in my hypotheses. The results showed that 86.4% of participants said that tattoos are more acceptable in some workplaces than others – 2% did not respond to the question. With age, 88% of participants aged 18-29, 86% of participants aged 30-49, and 100% of participants aged 50 and up said that tattoos are more acceptable in some workplaces than others. Of 672 participants who identified as male or female, 86% of women and 92% of men found tattoos to be more acceptable in some workplaces than others. 85% of people that have tattoos and 91% of people that do not have tattoos said that tattoos were more acceptable in some workplaces than others.

In order to analyze whether people still held negative stereotypes, I looked at how many times a participant answered negatively or positively towards the multiple questions regarding negative stereotypes towards people with tattoos. With these results, 82% of participants did not hold any negative stereotypes about people with tattoos, and less than 1% held strong negative stereotypes.

Participants found the most acceptable places to have visible tattoos in construction, restaurants/catering/food industry, and in self-employed positions. Education, business, and religion/clergy were the least chosen workplace for acceptable workplaces to have visible tattoos (see Figure 1). With size, 15% of participants said 1-3 in. in diameter was acceptable, 20% said 4-6 in. in diameter was acceptable, 4% said 7-9 in. in diameter was acceptable, less than 1% said 10-12 in. in diameter was acceptable, 46% said that a full sleeve/leg was acceptable, and 14% chose other. Other responses included things such as case specific, back, depends on location, and depends on work setting. With placement, I used a heat map to analyze the results (see Figure 2). This heat map shows that the face, back of the head, and back of the hands were the most frequently chosen spot of unacceptable places. The least chosen places were anywhere from the hips down.

As said before, due to not asking a general question on if tattoos were found to be acceptable in the workplace, I was not able to see if my first three hypotheses were supported or not. When comparing to the question if tattoos were more acceptably in some workplaces than others, gender and age did not seem to have an influence on responses. This seems to be the same case with personally having or not having tattoos as well. Although my results went against my hypothesis that there are negative stereotypes of people with tattoos, this is a good thing as it shows negative stereotypes towards people with tattoos are decreasing.

Though some questions did not relate directly to my hypotheses, results from the following questions were taken as well. One question regarding what type of tattoos participants considered unacceptable came with multiple results, as expected. These responses included different locations on the body (such as the face, head, etc.), tattoos regarding racism or sexism, misogyny, homophobia, drugs, gang affiliations, profanity, violence, pornography, anything gory, political, religious, controversial, or “NSFW” (not suited for work). With these varying responses it could be said that the type of tattoo being shown in a work setting may need to be discussed on a case by case basis – for example, someone may

think that their religious tattoo is completely harmless, though it may not be appropriate for the workplace at hand.

When asked if a specific gender was unacceptable to have a tattoo showing, only eight participants answered. Of these participants, 25% said both male and female, 25% said solely male, 37.5% said solely female, and 12.5% said neither – being that neither gender is considered unacceptable. When asked which age(s) are considered unacceptable to have visible tattoos, only 15 participants responded. Of these 15 participants, 27% said all ages were unacceptable, 13% said no ages are unacceptable, 27% said under age 18 is unacceptable, 7% said under 16, 7% said under 35, 13% said 40 and up, and 7% said that it depends on the age and location of the individual. When relating culture to acceptability of tattoos, I grouped participants into cultures of American/US, Canadian, mixed (being that they claimed having two or more culture experiences), and other (being any other culture than previously mentioned if only one culture mentioned). 91% of participants with American/US culture, 84% of participants with Canadian culture, 88% of participants with mixed culture, and 79% of participants with other cultures claimed that tattoos are more acceptable in some workplaces than others.

Near the end of the survey, participants that claimed they have tattoos answered questions dealing with having to cover their tattoos in the workplace, as well as how upset this made them. When asked if they have ever been treated negatively because of their tattoos, 81% said that they have not, and 19% said that they had. Of these 19%, the most frequent explanations were family related negativity towards them, as well as rude comments or questions about them from others. The workplaces brought up that required these individuals to cover up their tattoos included food service at 20%, retail/customer service at 21%, healthcare field at 11%, and areas working with children at 11% (teaching, camp counselor, day care, assistant principle). Other workplaces mentioned included theme parks, legal professions, nursing homes, government jobs, office work, construction, religious institutions, custodial work, and movie theaters. The level of “upset” that each participant ranged from 1 to 10, with 1 being not upset at all and 10 being extremely upset. The most frequently chosen number was 2, although this was not a very dramatic

difference from other chosen numbers (see Figure 3). This shows that the level of “upset” is quite individual to the person and situation at hand.

### **Discussion**

As mentioned previously, I was unable to clarify if my first three hypotheses were supported or not. My hypothesis that tattoos are becoming more acceptable in the workplace was supported by my data. Gender and age did not seem to have an influence on acceptability in the workplace when comparing each to tattoos being more acceptable in some workplaces than others – this being due to their responses all being fairly similar. My results contradicted my hypothesis that there are still negative stereotypes against people with tattoos.

Some things to take into consideration are that some responses to questions did not line up with others. For example, some participants would answer that tattoos are only acceptable in some workplace settings, but in open response would claim that all workplaces are considered acceptable to have tattoos showing. In future research, I would clarify these questions more so that answers could correlate better. I also would change my questions to have only “unacceptable” or only “acceptable” throughout the entire survey, so as participants did not become confused in some situations. On Reddit, one of my participants brought up the confusion between having unacceptable and acceptable continuously interchange throughout the survey, so only having one or the other could get rid of this confusion.

Some limitations to mention occurred through the responses to how the participants identified their gender. This question was an open response, allowing participants to type in their answers. This brought upon multiple different responses that did not have relation to gender, such as not wanting to respond because they did not support gender theory, attack helicopter, secret agent, old lady, bi, straight, etc. Another limitation is that I had so many open response questions – though this allowed participants to clearly speak their minds regarding each question, it also had responses that did not go along with the question at all, as well as a very wide range of responses. In future research, I would have less open

response questions in order to reduce these affects. Although I had a good amount of participants, if I continued this research, I would hope to gain even more participants so that I can get even more information regarding acceptability of tattoos in the workplace.

In regard to not fully being able to answer all of my hypotheses, in future research I would also like to amend this. To do so, instead of asking if having visible tattoos is more acceptable in some workplaces than others, I would have a blanket statement of “tattoos are acceptable to have visible in the workplace” and have it as a true or false question. This would allow me to be able to compare my different demographics and other factors more accurately.

The implications with this study are quite relevant to the current workplace. Many people of younger generations are beginning to go into the workforce, and with the popularity of tattoos increasing, the question of getting or having visible tattoos in regard to future employment can be in mind. With research regarding how the general public feels about tattoos, this can help employers see what the current norm of society is and adjust their policies accordingly. This information can also be beneficial to the general public that is already in, and for those going into the workforce soon, so that they can decide if or when they want to get a tattoo, as well as where they should place their tattoo if they do decide to get one.

#### References

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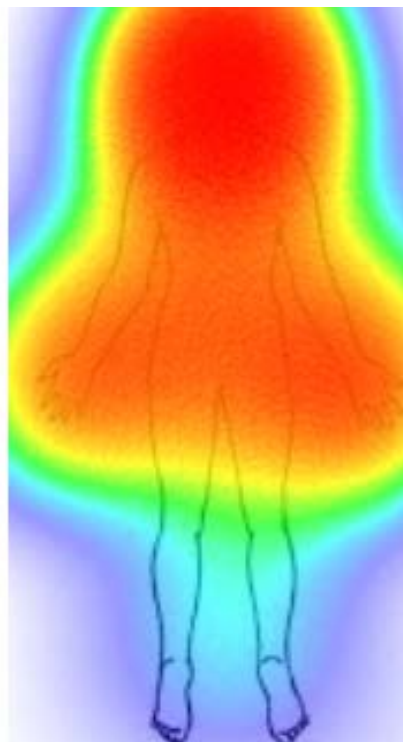
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Type of Workplace	% Acceptable	Count
<b>Other, please specify*</b>	1.39%	82
<b>Religion/Clergy</b>	5.67%	335
<b>Corporate Level</b>	7.20%	425
<b>Business</b>	7.65%	452
<b>Education</b>	8.01%	473
<b>Health Care</b>	8.86%	523
<b>Retail</b>	11.80%	697
<b>Music, Theater, and the Arts</b>	12.04%	711
<b>Restaurant/Catering/Food Industry</b>	12.21%	721
<b>Self-Employed</b>	12.50%	738
<b>Construction</b>	12.68%	749

*Figure 1.* This is a table showing the results from the question “Which workplaces do you consider to be acceptable to have visible tattoos? Select all that apply.” \*Other included things such as adult entertainment, tattoo artists, technology, and science related jobs.



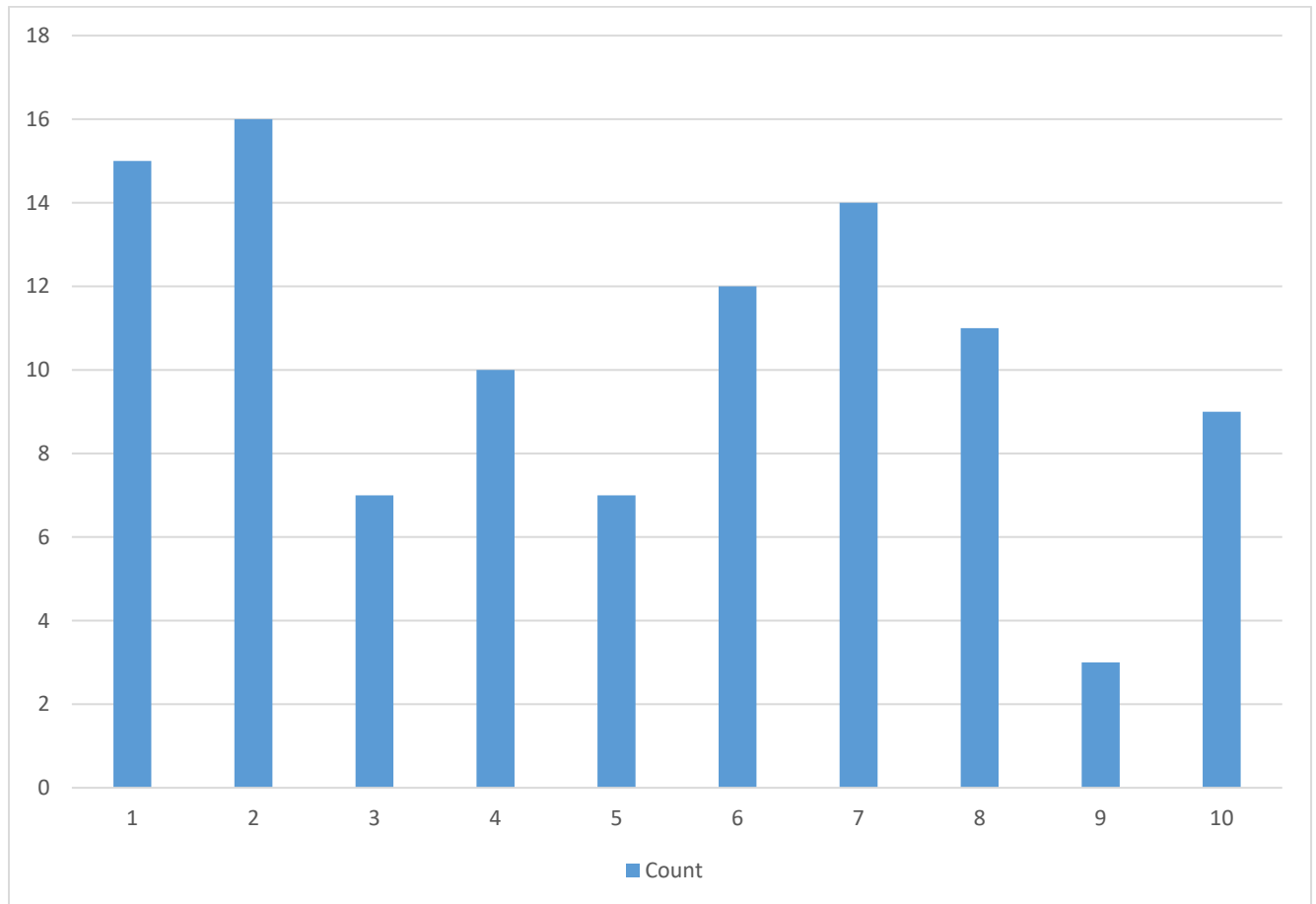
Front of the body



Back of the body

*Figure 2.* These images are a heat map attached to the question(s) “What location of tattoos are considered Unacceptable to have showing in a workplace setting? (FRONT OF BODY) or (BACK OF BODY)” Areas where the colors are “hottest” are where participants chose most frequently. The red areas are where was chosen most, being the face, back of the head, and back of the hands. Arms and torso were shown as orange areas on the back of the body, which shows that they were frequently chosen as well. Whereas the legs and the feet were rarely chosen at all.





*Figure 3.* This bar graph shows the results attached to the question “How upset were you that you had to cover up your tattoo? (1 being not upset at all and 10 being extremely upset)”

## Appendix A

## Tattoos in the Workplace (Survey)

# Tattoos in the Workplace

Q1 You are being asked to participate in a survey conducted by Megan Hamilton at Lindenwood University. I am doing this study to look at different demographic factors associated with acceptance of tattoos in the workplace. You will be asked a range of demographic questions, as well as your opinions on tattoos and tattoos in the workplace. It will take about 10 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time by simply not completing the survey or closing the browser window.

There are no risks from participating in this project. I will not collect any information that may identify you. There are no direct benefits for you participating in this study.

## WHO CAN I CONTACT WITH QUESTIONS?

If you have concerns or complaints about this project, please use the following contact information:

Megan Hamilton email: [mth728@lindenwood.edu](mailto:mth728@lindenwood.edu)

Dr. Michiko Nohara-LeClair email: [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director – Institutional Review Board) at 636-949-4730 or [mleary@lindenwood.edu](mailto:mleary@lindenwood.edu).

By my response below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age.

You can withdraw from this study at any time by simply closing the browser window. Please feel free to print a copy of this information sheet.

Q2 Please choose one of the following options

- I agree to participate in this study (1)
- I do not agree to participate in this study (2)

*Skip To: End of Survey If Please choose one of the following options = I do not agree to participate in this study*

Q3 How old are you? Please specify.

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*Skip To: End of Survey If How old are you? Please specify. = 0*

*Skip To: End of Survey If How old are you? Please specify. = 1*

*Skip To: End of Survey If How old are you? Please specify. = 2*

*Skip To: End of Survey If How old are you? Please specify. = 3*

*Skip To: End of Survey If How old are you? Please specify. = 4*

*Skip To: End of Survey If How old are you? Please specify. = 5*

*Skip To: End of Survey If How old are you? Please specify. = 6*

*Skip To: End of Survey If How old are you? Please specify. = 7*

*Skip To: End of Survey If How old are you? Please specify. = 8*

*Skip To: End of Survey If How old are you? Please specify. = 9*

*Skip To: End of Survey If How old are you? Please specify. = 10*

*Skip To: End of Survey If How old are you? Please specify. = 11*

*Skip To: End of Survey If How old are you? Please specify. = 12*

*Skip To: End of Survey If How old are you? Please specify. = 13*

*Skip To: End of Survey If How old are you? Please specify. = 14*

*Skip To: End of Survey If How old are you? Please specify. = 15*

*Skip To: End of Survey If How old are you? Please specify. = 16*

*Skip To: End of Survey If How old are you? Please specify. = 17*

Q4 For each of the following statements, identify whether you believe the situation is true or false.

Q5 People with tattoos are more likely to be irresponsible.

True (1)

False (2)

Q6 People with visible tattoos are seeking attention.

True (1)

False (2)

Q7 Having tattoos is more acceptable in some workplace settings than others.

True (1)

False (2)

*Display This Question:*

*If Having tattoos is more acceptable in some workplace settings than others. = True*

Q8 Which workplaces do you consider to be acceptable to have visible tattoos? Select all that apply.

Education (1)

Health Care (2)

Restaurant/Catering/Food Industry (3)

Retail (4)

Construction (10)

Business (11)

Music, Theater, and the Arts (12)

Religion/Clergy (13)

Corporate Level (5)

Self-Employed (6)

Other, please specify: (7) \_\_\_\_\_

None of the above (8)

Q9 Which of the following factors are considered when deciding if visible tattoos are unacceptable in a workplace setting? Select all that apply.

Location of tattoo (1)

Size of tattoo (2)

What the tattoo is of (3)

Gender of the person with the tattoo (4)

Age of the person with the tattoo (6)

Other (5)

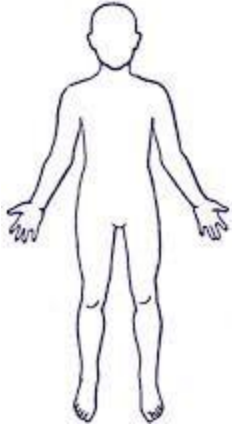
*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Location of tattoo*

Q10 What location of tattoos are considered **UNacceptable** to have showing in a workplace setting?

(FRONT OF BODY)



*Display This Question:*

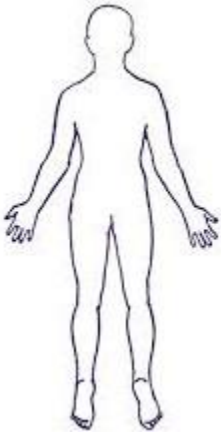
*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Location of tattoo*



Q11 What location of tattoos are considered **UNacceptable** to have showing in a workplace setting?

(BACK OF BODY)



*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Size of tattoo*

Q12 What do you consider the largest acceptable size of visible tattoo in the workplace?

- 1-3 inches in diameter (4)
- 4-6 inches in diameter (7)
- 7-9 inches in diameter (8)
- 10-12 inches in diameter (9)

Full sleeve/leg (10)

Other, please specify (11) \_\_\_\_\_

*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*What the tattoo is of*

Q13 What type of visible tattoo do you consider to be unacceptable in the workplace? Please specify.

\_\_\_\_\_

*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Gender of the person with the tattoo*

Q14 What gender is considered unacceptable to have a tattoo showing in a workplace setting? Please specify.

\_\_\_\_\_

*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Age of the person with the tattoo*

Q15 What age(s) do you consider unacceptable to have visible tattoos in the workplace? Please specify.

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*Display This Question:*

*If Which of the following factors are considered when deciding if visible tattoos are unacceptable i... =*

*Other*

Q16 What other factors do you consider when deciding if visible tattoos are acceptable in the workplace or not? Please specify.

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Q17 True or False: The quality of work of an employee with a tattoo is lesser than an employee that has no tattoos.

True (1)

False (2)

Q18 Do you have any tattoos?

Yes (1)

No (2)

*Display This Question:*

*If Do you have any tattoos? = Yes*

Q19 Have you ever been treated negatively because of your tattoos? Please specify if yes.

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*Display This Question:*

*If Do you have any tattoos? = Yes*

Q20 Have you ever had to cover a tattoo in a workplace setting?

Yes (1)

No (2)

*Display This Question:*

*If Have you ever had to cover a tattoo in a workplace setting? = Yes*

Q21 In which job were you required to cover your tattoo? Please specify.

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*Display This Question:*

*If Have you ever had to cover a tattoo in a workplace setting? = Yes*

Q22 How upset were you that you had to cover your tattoo? (1 being not upset at all and 10 being extremely upset)

1 2 3 4 5 6 7 8 9 10

**How upset were you? ()**



Q23 How do you currently describe your gender identity?

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Q24 What culture(s) did you grow up experiencing? (Ex: American culture, Japanese culture, Latina/Latino culture, etc.) Please specify.

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Q25 Thank you for taking the time to complete my study! This study was conducted in order to see how acceptable tattoos are in the workplace, as well as what demographic characteristics are associated with acceptability of tattoos in the workplace.

If you have any questions or are interested in the results of this study, you are welcome to contact me through the contact information provided below. Thank you again for participating!

Sincerely,

Principal Investigator: Megan Hamilton      mth728@lindenwood.edu

Supervisor: Dr. Michiko Nohara-LeClair 636-949-4371 (mnohara-leclair@lindenwood.edu)

## Women's Place in the World

*Jennifer Johnson<sup>4</sup>*

When discussing gender roles and feelings towards women, they are held in lower standards than men. In society, home life, and the workplace, women are less respected than their male counterparts. I hypothesize that 1) societal expectations for women will match with traditional gender norms, 2) participants who indicate that they are religious will have a more traditional view of women's roles, 3) some religions will show a more traditional view of women's roles than others, 4) women will be seen as less competent than men in the workplace, and 5) women will not be as respected as men in the workplace.

In home life, Kulik (2000) surveyed 137 adolescents and their parents to determine gender role attitudes in families. He found that there were significant similarities between spousal beliefs in regards to gender roles and the beliefs of their children. It was found, however, that the female head of house was more likely to lean towards being more liberal and the male head of house was more likely to be traditional, with the children being somewhere in the middle of their beliefs (Kulik, 2000). This shows that gender role beliefs are often influenced by the views of parents or guardians.

Eliason, Anderson, Hall, and Willingham (2017) looked at religion and gender roles by surveying 340 female college students that attended the same Evangelical university. They found that the more traditional the religious beliefs of the participant, the more traditional she viewed

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gender roles. The more traditional the participant was about gender roles, the less likely she was to work towards having a career and was more likely to have sexist attitudes and shame about their body (Eliason et al., 2017). This research only focused on female students that were attending the same Evangelical school and may not be reliable for other religions. Furthermore, Sevim (2006) examined students at Ankara University in Turkey, and found, similar to Eliason et. al., (2017) that the more religious a participant was the more negative their feelings on women working was.

In the workplace, Garcia-Retamero and López-Zafra (2006) surveyed 705 people in the south of Spain about feelings on gender in the workplace, of which 326 participants were male and 379 were female. All participants were White. Each participant was given a hypothetical situation in which a male or female candidate was being considered for a promotion to a management position, either in a “female” industry, “male” industry, or a “neutral” industry (Garcia-Retamero & López-Zafra, 2006). Participants were more likely to say that a male candidate was favored to get the promotion, make more money, and be better off in the future than women. (Garcia-Retamero & López-Zafra, 2006).

The studies all showed that women are less respected than men in social life, religious attitudes, and the workplace. This study will attempt to replicate these findings and also determine if the religion of the participant relates to how the participant feels about gender roles.

To test my hypotheses, I used an anonymous survey to collect data.



## Method

### Participants

Participants were recruited from social media platforms, such as Facebook, Tumblr, Snapchat, and Reddit. Classroom presentations was also utilized in recruiting participants.

A participant was considered eligible for this study if they were at least 18 years of age. Underage participants were not allowed to participate in the research. There were (x amount of) participants in which data was usable. No compensation was provided for participants.

### Materials and Procedure

An IRB application was submitted to PPSRC on March 18, 2019, and after one revision, was sent to the Lindenwood IRB on April 6, 2019. The study was approved on April 8, 2019.

An anonymous survey was distributed with Qualtrics, with 24 questions (see Appendix A). An anonymous survey was conducted in order to ensure participant's privacy and in an effort to make participants more comfortable with giving true opinions. Qualtrics, an online tool used to create and share surveys, was utilized in order to ensure that the survey stayed anonymous and prevent me from being able to determine the identity of any participant. Participants will be able to take the survey on any device that can connect to and open an internet tab (laptop, desktop, smart phone, iPad, tablet, etc.) and will be taken at their convenience.

The survey was closed on (date), and any data that was too incomplete was omitted from the results. Data was compiled into SPSS and a correlation and two independent *t*-tests were conducted.

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## Appendix A

## Survey

# Understanding Gender Roles

Q1 You are being asked to participate in a survey conducted by Jennifer Johnson and Dr Nohara-LeClair at Lindenwood University. We are doing this study to better understand the gender roles in society, the workplace, and religion. You will be asked to answer questions about your opinions on gender roles in each subsection listed above. It will take about 5 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at anytime by simply not completing the survey or closing the browser window. There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study. Your participation is an opportunity to contribute to psychological science.

## WHO CAN I CONTACT WITH QUESTIONS?

If you have concerns or complaints about this project, please use the following contact information:

Jennifer Johnson at [jjj260@lindenwood.edu](mailto:jjj260@lindenwood.edu)

Dr Nohara-LeClair at [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or [ormleary@lindenwood.edu](mailto:ormleary@lindenwood.edu). You can withdraw from this study at any time by

simply closing the browser window. Please feel free to print a copy of this information sheet. By continuing with the survey, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age.

Q2 The next block of questions will ask about every day life

Q3 Please drag over all qualities that you attribute to each gender for everyday life. Each choice may only be used once.

Men

Women

\_\_\_\_\_ Strong (1)

\_\_\_\_\_ Strong (1)

\_\_\_\_\_ Good looks (2)

\_\_\_\_\_ Good looks (2)

\_\_\_\_\_ Honest (3)

\_\_\_\_\_ Honest (3)

\_\_\_\_\_ Loyal (4)

\_\_\_\_\_ Loyal (4)

\_\_\_\_\_ Caring/Compassion (5)

\_\_\_\_\_ Caring/Compassion (5)

\_\_\_\_\_ Powerful (6)

\_\_\_\_\_ Powerful (6)

\_\_\_\_\_ Financially secure (7)

\_\_\_\_\_ Financially secure (7)

\_\_\_\_\_ Strongly involved in parenting (8)

\_\_\_\_\_ Strongly involved in parenting (8)

\_\_\_\_\_ Homemaker (9)

\_\_\_\_\_ Homemaker (9)

\_\_\_\_\_ Submissive (10)

\_\_\_\_\_ Submissive (10)

\_\_\_\_\_ Dominant (11)

\_\_\_\_\_ Dominant (11)

\_\_\_\_\_ Not sexually active (12)

\_\_\_\_\_ Not sexually active (12)

Q4 Please drag over all of the responsibilities that you attribute to each gender for everyday life. Each choice may only be used once.

Men

\_\_\_\_\_ Pay the bills (1)

\_\_\_\_\_ Do the taxes/File taxes (2)

\_\_\_\_\_ Manage the budget (9)

\_\_\_\_\_ Iron (4)

\_\_\_\_\_ Mow the lawn (5)

\_\_\_\_\_ Vacuum (6)

\_\_\_\_\_ Wash dishes (7)

\_\_\_\_\_ Do laundry (8)

\_\_\_\_\_ Do light car maintenance (such as changing the oil) (10)

\_\_\_\_\_ Fix things around the house (such as a broken dishwasher or broken lamp) (11)

\_\_\_\_\_ Organize play dates for children (12)

\_\_\_\_\_ Prepare meals (13)

Women

\_\_\_\_\_ Pay the bills (1)

\_\_\_\_\_ Do the taxes/File taxes (2)

\_\_\_\_\_ Manage the budget (9)

\_\_\_\_\_ Iron (4)

\_\_\_\_\_ Mow the lawn (5)

\_\_\_\_\_ Vacuum (6)

\_\_\_\_\_ Wash dishes (7)

\_\_\_\_\_ Do laundry (8)

\_\_\_\_\_ Do light car maintenance (such as changing the oil) (10)

\_\_\_\_\_ Fix things around the house (such as a broken dishwasher or broken lamp) (11)

\_\_\_\_\_ Organize play dates for children (12)

\_\_\_\_\_ Prepare meals (13)

Q5 Should a husband or wife be in charge of the household?

Husband (1)

Wife (2)

Neither (3)

Q6 Who should be a stay at home parent?

Father (1)

Mother (2)

Neither (3)

Q7 The next block of questions will ask you about the workplace

Q8 Do you currently have a job?

Yes (5)

No (6)

Q9 Your supervisor at work is volatile, and prone to outbursts of unprovoked anger. Your supervisor often yells at employees, and refuses to listen to explanations, and lashes out if things do not go as planned.

Based on this brief scenario, would you categorize this as a male supervisor or female supervisor?

Male (1)

Female (2)

Q10 Your supervisor at work is relaxed about things, often smiling and joking with employees, and often brings treats in from time to time as an act of employee recognition. Your supervisor does not solve guest problems well, and the guest often leaves unsatisfied, but the employees are happy with their supervisor.

Based on this brief scenario, would you categorize this as a male supervisor or female supervisor?

Male (1)

Female (2)



Q11 Your supervisor at work is very happy, smiling and asking employees and guests about their day, and handles guest situations swiftly and with confidence. The guest often leaves happy.

Based on this brief scenario, would you categorize this as a male supervisor or female supervisor?

Male (1)

Female (2)

Q12 Have you ever had a male supervisor?

Yes (1)

No (2)

Q13 Have you ever had a female supervisor?

Yes (1)

No (2)

*Display This Question:*

*If Have you ever had a female supervisor? = Yes*

*And Have you ever had a male supervisor? = Yes*

Q14 In general, do you find male supervisors or female supervisors more enjoyable to work with?

Male (1)

Female (2)

*Display This Question:*

*If Have you ever had a male supervisor? = Yes*

*And Have you ever had a female supervisor? = Yes*

Q15 In general, do you find male supervisors or female supervisors more capable at dealing with tough situations, such as irritated guests or loss of product?

Male (1)

Female (2)

*Display This Question:*

*If Have you ever had a male supervisor? = Yes*

*And Have you ever had a female supervisor? = Yes*

Q16 In general, do you feel that male supervisors or female supervisors have a better attitude at work towards employees?

Male (1)

Female (2)

*Display This Question:*

*If Have you ever had a female supervisor? = No*

Q17 Would you be interested in working under a female supervisor?

Yes (4)

No (5)

*Display This Question:*

*If Have you ever had a male supervisor? = No*

Q18 Would you be interested in working under a male supervisor?

Yes (1)

No (2)

*Display This Question:*

*If Would you be interested in working under a female supervisor? = Yes*

Q19 Please explain your answer

---

*Display This Question:*

*If Would you be interested in working under a female supervisor? = No*

Q20 Please explain your answer

---

Q21 The next block of questions will ask you about religion

Q22 What is your religion?

- Christian/Catholic (1)
- Mormon (2)
- Muslim (3)
- Jewish (4)
- Buddhist (5)
- Hindu (6)
- Nonreligious (7)
- Other (please specify) (8) \_\_\_\_\_

Q23 How religious, in general, would you rate yourself? 1 being not at all religious and 10 being incredibly religious

1 2 3 4 5 6 6 7 8 9 10

Religiosity Rating ()



Q24 Please rate how strongly you agree or disagree with each statement in regards to your personal religious beliefs

	Strongly Disagree (2)	Disagree (3)	Somewhat Disagree (4)	Neither Agree Nor Disagree (5)	Somewhat Agree (6)	Agree (7)	Strongly Agree (8)
Women should be submissive to men (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Men should run the household (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Women

should be in

charge of

the children

(for

example:

bathing,

setting

rules,

getting

them ready

for school)

(3)

Women

should not

be sexually


active prior

to marriage


(4)




Men should  
not be  
sexually  
active prior  
to marriage  
(5)




Men have a  
right to  
sexual  
favors from  
their wife  
(6)



Women  
should  
maintain the  
cleanliness  
of the  
household  
(8)



Men should  
take care of  
the finances  
(9)





Men should  
be the  
breadwinner  
of the  
household  
(10)

Men should  
be allowed  
to have  
multiple  
wives (12)

Women  
should be  
responsible  
for teaching  
children  
about the  
religious  
beliefs of  
the  
household  
(13)

Q25 The following block of questions will ask you about your demographics

Q26 How old are you?

18-24 (1)

25-34 (2)

35-44 (3)

45-54 (4)

55-64 (5)

65 or older (6)

Q27 Where do you currently live?

US or Canada (1)

Other (please specify) (2) \_\_\_\_\_

Q28 What gender do you identify with?

- Male (1)
- Female (2)
- Gender Nonconforming (4)

Q29 What is your race or ethnicity?

- Caucasian (1)
- African American or Black (2)
- Hispanic or Latino (3)
- Native American or American Indian (4)
- Asian or Pacific Islander (5)
- Other (please specify) (6) \_\_\_\_\_

Q30 Thank you for taking the time to complete this survey for my class project at Lindenwood University. I have hypothesized that 1) Societal expectations for women will match with traditional gender norm, 2) Participants that indicate they are religious will have a more traditional view of women's roles, 3) Women will be seen as less competent than men in the workplace, and 4) Women will not be as respected as men in the workplace.

Thank you again for your contribution to psychological science!

Principal Investigator, Jennifer Johnson [jjj260@lindenwood.edu](mailto:jjj260@lindenwood.edu)

Faculty Supervisor, Dr. Michiko Nohara-LeClair (636)949-4371 [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

**SPECIAL FEATURE:**  
**PSYCHOLOGY RESEARCH LABS AND SENIOR THESIS**  
**FALL 2018 & SPRING 2019**

## Athletes' Openness to Sexuality

*Tereza Melicharkova<sup>5</sup>*

*There are several studies that suggest a biological indicator linked to homosexuality among men (see for example, LeVay & Hamer, 1994); however, such a finding is lacking among women. The studies that were focused on homosexuality among women were focused only on the prevailing stereotypes (Blinde & Taub, 1992; Knight & Giuliano, 2003; Mereish & Poteat, 2015; Morandini Blaszczyński, Costa, Godwin, & Dar-Nimrod, 2017). Therefore, the purpose of this study is to find out whether the proportion of lesbians among athletes does differ from the general population and if there is any difference between individual sports and team sports. Several researchers mentioned that female athletes who compete in traditionally masculine team sports are more likely to be homosexual (Blinde & Taub, 1992; Knight & Giuliano, 2003; Mereish & Poteat, 2015) and I wanted to see whether this is true or not. Therefore, I created five questions that addressed women's sexual orientation and their openness to sexuality. This study was composed of 51 female adult participants who took my survey. The collected data were analyzed by descriptive statistics. Finally, the findings showed that there are fewer lesbian women in the general population than in sports, and that there was significant difference between lesbian women in individual sports and team sports.*

*Keywords: homosexuality, female athletes, prevailing stereotypes, sexual orientation*

Although there are several studies that suggest a biological indicator linked to homosexuality among men such findings are lacking among women (see for example, LeVay & Hamer, 1994). Knowing that there is not enough research about homosexuality among women and knowing that studies focused primarily on prevailing stereotypes in our society made me realize that more research has to be done. In other words, I want to see whether there are any correlates of homosexuality among women. The primary purpose of this study was to find out

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interested to see if there are any differences between team sports and individual sports.

Many of the studies that are focused on women's sexuality present one of the prevailing stereotypes that female athletes who compete in traditionally masculine team sports are homosexual (Blinde & Taub, 1992; Knight & Giuliano, 2003; Mereish & Poteat, 2015). Blinde and Taub (1992) examined how devaluation and stigmatization impact Division I women athletes. They interviewed 24 female athletes over the phone. This study found out that many athletes were aware of the false beliefs that most female athletes are lesbian; however, the majority of the athletes who were interviewed were heterosexual. Blinde and Taub (1992) mentioned that many of athletes try to identify themselves differently (e.g. student); therefore, they cannot be labeled as lesbian as a female athlete. Some of the athletes also mentioned who they are specifically dating; that way they make it clear that they are not homosexual. This study provided a better understanding of how the women athletes cope with the knowledge of the prevailing stereotypes, as well as how they respond to it.

Knight and Giuliano (2003) were also aware of the stigma among women's sports; therefore, they created fictitious newspaper profiles about Olympic athletes and gave it to 91 participants (40 men and 51 women) to see how they will label the athletes. The purpose of this study was to see how the participants would perceive the athletes; for instance, if the athlete was masculine, athletic, feminine, homosexual, heterosexual, and how physically attracted they were to that athlete (Knight & Giuliano, 2003). Knight and Giuliano (2003) found out that both female and male athletes that were clearly described as heterosexual were perceived more positively than the athletes with a different sexual orientation.

Mereish and Poteat (2015) were focused on the differences among sexual orientation in physical activity, sports involvement, and body mass index among female and male adolescents.

They found out that male adolescents who identified themselves in a sexual minority group did not participate in any team sports; they were less likely to be physically active than the heterosexual male adolescents. However, this study found out that this is not the case among female adolescents. In other words, female adolescents who identified themselves as homosexual or as a sexual minority do participate in team sports and they are also physically active. However, Mereish and Peteat (2015) also pointed out that heterosexual females (57%) participated in team sports more frequently than the sexual minority females (35%). Mereish and Peteat (2015) also mentioned that the reason why some of the adolescents do not participate in any physical activities or team sports could be because they are trying to avoid the potential stigma or victimization that they often experienced.

Morandini, Blaszczynski, Costa, Godwin, and Dar-Nimrod (2017) among all of the interests, they wanted to see if women believe that their sexual orientation is inborn/natural or as existing in discrete categories. They found out that women who identify themselves as inborn lesbians feel more comfortable and open about their sexual orientation than women who reported their sexual orientation changed over time.

Finally, all of these studies mentioned some of the prevailing stereotypes and stigmas that our society still hold. As mentioned before, there have been a lot of studies that were focused on the male homosexual population; however, there is not enough research about the female homosexual population. Therefore, I conducted this study to find out whether the proportion of lesbians among athletes differs from the general population, as well as if there is any difference among individual sports and team sports. I was also interested to see if the sexual orientation of my participants changed over their lifetime or not. Finally, I also wanted to find out if women



agree with some of the most common stereotypical statements that are being said about female athletes.

I created an online survey that was addressed only for adult female participants. Another study done by Mark, Toland, Rosenkrantz, Brown, and Hong (2018) used the Sexual Desire Inventory (SDI) to measure the dyadic (an interest to engage in sexual activity with another person) and solitary (an interest in engaging in sexual behavior by oneself) sexual desire of the LGBTQ population. The SDI is a 3-factor structure solution that is looking at dyadic sexual desire for partner, solitary sexual desire, and dyadic sexual desire for an attractive other (Mark et al., 2018). The main purpose of this study was to adapt the SDI for LGBTQ population because the SDI was focused only on the heterosexual population. This study was important because it brought up important wording of questions for the LGBTQ population for the current study. However, I created all of the questions that were used in my survey because I did not find any questionnaires that would be useful for this particular study.

## **Method**

### **Participants**

The women who took my survey were recruited from Facebook and the Psi Chi study recruitment site. The survey link was posted on Facebook, as well as on the Psi Chi website where women accessed my survey. There were 22 female who were non-athletes and 29 female who were athletes. There were also 3 female athletes in team sports, and 22 women athletes in individual sports. From these participants, there were 33 participants in group of 18-22 years old, 14 participants in group of 23-27 years old, 2 participants in group of 28-32 years old, and 2 participants who were 33 years old or older. In my study, there were 20 non-athlete women who reported to identified themselves as heterosexual, 1 homosexual, and 1 bisexual. Finally, there

were also 25 athlete women who reported to identified themselves as heterosexual, 3 homosexual, and 1 bisexual.

### **Materials and Procedure**

To create my survey, I had to log in to Qualtrics where I wrote the informed consent statement where I asked the participants to verify their gender. I also familiarized the women with the study in accordance with questions about their age and gender. For my survey I created five questions that addressed the women's sexual orientation and their openness to sexuality (see Appendix A). After this section, the participants were asked six demographic questions.

I created my online survey on Qualtrics. Participants first read the informed consent statement where I informed them of my study, the purpose of my study, and the type of questions they would be asked. I also made sure that they clearly understood that this survey was anonymous, and therefore, there will be full confidentiality. After that, I mentioned that this topic is sensitive; therefore, it could happen that a woman may not always feel comfortable answering some of the questions. Nevertheless, I assured them that they can stop the survey at any time they would want and that they can also skip any questions they would like. At the end of the informed consent statement, my contact information, as well as the contact information for my faculty supervisor, were provided to the participants in case they wanted to contact us with any questions they may have. I included only female participants in my study. Those who identified their gender to be male or other were taken to the end of the survey. My survey proceeded further with questions about openness to sexuality, as well as about sexual orientation. I wanted to find through these questions how open women are about their sexuality, if there was any change in relation to their sexual orientation over the course of their life, how open the woman is to experience sexual interactions with people of different genders, and to whom they are

attracted to. After a woman answered these questions, she moved to the demographic questions (e.g. age, athlete vs. non-athlete, individual sport vs. team sport, or a type of sport). I asked these questions at the end of my survey because I did not want the participants to answer the questions with feminine or masculine bias in a relation to sports.

Finally, I closed my survey with a debriefing statement where I thanked the women for taking the time to take my survey and acquainted them with the information that I cannot provide them any individual finding because this survey was completely anonymous; however, that I could provide them with the final results upon request.

### **Results**

I analyzed my data using descriptive statistics on Microsoft Excel. Firstly, I wanted to see whether the proportion of lesbians among athletes differs from the general population. Therefore, I asked the questions: “How do you identify your sexual orientation?” and “Are you an athlete?” Based on these questions I found out that 29 females identified themselves as an athlete and 22 of females identified themselves as a non-athlete.

Next, I was interested to see if there were any differences between team sports and individual sports. Therefore, I asked the following questions to athletes only: “Which of the following best describes your sport?” and “What sport(s) do you currently play?” Based on these questions I found out that of the 29 athletes in this study who actually answered these questions, 3 engaged in team sports whereas 22 engaged in individual sport. There was only one athlete in the team sport who identified herself in the sexual minority group compared to three athletes in the individual sports. The most common individual sport that female athletes participated in was tennis. Swimming, wrestling, and horse riding were the team sports the athletes participated in.

Further, I was also interested to see to whom the participants are attracted to today. I found out that 3 women were attracted to the same gender, 44 women were attracted to the other gender, 3 women were attracted to both genders, and only 2 women who reported that they do not know. Next, I asked the question: “How open are you to experience any kind of sexual interaction with a woman?” There were 19 women who answered “not at all,” 16 women who answered “slightly,” 9 women who answered “moderately,” 7 women who answered “very,” and only 1 woman who answered “extremely.” I also asked: “How open are you to experience any kind of sexual interaction with a man?” There was 1 woman who answered “not at all,” 3 women who answered “slightly,” 6 women who answered “moderately,” 16 women who answered “very,” and 26 women who answered “extremely.”

Since, I was interested to see if the sexual orientation of my participants changed over their life time or not, I asked the participants, “Looking back at your life time, to whom have you been attracted to?” The results are summarized in Table 1; however, the findings should be taken with caution because this question was misunderstood or misread by many participants.

I also wanted to see if women agree with some of the prevailing stereotypes; therefore, I asked the questions: “How much do you agree with the statement that there are more lesbians in team sports (e.g. rugby, soccer, ice-hockey, basketball)” and “How much do you agree with the statement that there are more lesbians among people who play sports than among the general population?” For the first question, there were 28 women who agreed, 13 women who did not agree nor disagree, and 10 women who disagreed with the statement. For the second question, there were 12 women who agreed, 16 women who did not agree nor disagree, and 23 women who disagreed with the statement.

Finally, this study showed that our society is still not moving away from the prevailing stereotypes. However, I hope that this study could be the beginning for our society to move away from the prevailing stereotypes. Next, this study also showed that today's women still do not feel confident, open, and proud about their sexual orientation. However, the purpose and hope of this study was to show women that it is alright to identify one's self in a sexual minority group.

### **Discussion**

The purpose of this study was to find out whether the proportion among athletes differ from the general population. The findings showed that there are proportionately more women who identified themselves in the sexual minority group than in the general population; there were 4 out of 29 athletes who identified themselves as a sexual minority compare to only 2 out of 22 non-athletes. The second focused was on the difference between individual sports and team sports. The results indicated that the proportion among athletes in individual sports are higher than in team sports. As mentioned before, there were 3 out of 22 athletes from individual sports who identified themselves as a sexual minority whereas only 1 out of 3 athletes from team sports who identified herself as a sexual minority.

It is important to realize that there is not enough research about homosexuality among women. That is why it is critical to put more importance on this topic, so society can move away from the prevailing stereotypes that may hurt women who identify themselves as sexual minorities. Unfortunately, I found out that today's women still do believe in the prevailing stereotypes that our society still holds. I also found out that there are fewer lesbian women in the general population than in sports and that there was a difference between lesbian women in individual sports and team sports.

The previous studies were mainly focused on the prevailing stereotypes, physical activity among sexual minorities, and the sexual identity outcome. However, Blind and Taub (1992) also showed that these prevailing stereotypes do not always apply to today's women. My study did support the preceding studies. Most of the preceding studies mentioned that female athletes who compete in team sports are more likely to be lesbians; however, the findings showed that this is not true.

As it was seen from the findings it is clear that today's women still believe in some of the prevailing stereotypes about women's sexual orientation in sports. The majority of the participants believed that there are more lesbians in team sport than in individual sports. My findings supported this stereotype. On the other hand, many of the participants did not agree that there are more lesbians among people who play sport than among the general population. However, my findings showed the stereotype to be true. Also, the reason why there are more women who identify themselves as sexual minorities may be because of the environment they live in. In other words, women athletes spend most of their time in contact with other women; therefore, it may be more comfortable for them to establish an intimate relationship with a woman.

One of the biggest limitations that I found out after collecting my data was that many participants misunderstood or misread the question about their lifetime attraction. Participants were asked to report on their past; however, many participants thought that they need to respond about their future sexual orientation as well. Therefore, they guessed or selected "I do not know." I would recommend to clarify how to answer this question; the misunderstanding could be reduced. I found out that a few participants did not have a clear understanding of the meanings of the terms that I used for the sexual orientations; therefore, I would suggest to provide a clear

definition of each term. Finally, there was some ambiguity about the definitions of team and individual sports. For instance, one participant indicated that wrestling is a team sport; however, additional four participants who competed in wrestling reported that wrestling is an individual sport. In that case, I would suggest to provide a definition of what team or individual sport means (e.g. team sports can only be played with other teammates; however, individual sports can be played by one person).

Another limitation of my study was that I attempt to recruit the participants through Facebook, Reddit, and Psi Chi; however, Reddit did not allow me to post my study in any of their groups. I got an email from them that they deleted my survey from their pages because I did not have enough credits to share my study. For future reference I recommend to create a profile on Reddit at least a month earlier and try to be active on it.

Future research should be focused more on contact sports, as well as take a look at the reasons why there are more women who identify themselves as sexual minorities in sports than in the general population. Future studies should also focus on the biological indicators linked to homosexuality among women. The importance of the mental state of these women should be taken into a consideration too. My hope is that by participating in my study, women could be more comfortable with the fact that it is alright to be open about their sexuality and sexual orientation. Further studies in this area could help our society to gain more knowledge about women's sexuality and sexual orientation.

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Table 1

Summarized results from Question #16 “Looking back at your life time, to whom have you been attracted to?”

Age group	Same gender		Other gender		Both		Neither		I do not know		Total
	%	# *	%	# *	%	# *	%	# *	%	# *	
13-18 years old	11.76	6	70.59	36	15.69	8	1.96	1	0.00	0	51
19-26 years old	14.58	7	68.75	33	10.42	5	2.08	1	4.17	2	48
27-32 years old	7.69	2	42.31	11	7.69	2	3.85	1	38.46	10	26
33-38 years old	4.76	1	28.57	6	0.00	0	4.76	1	61.90	13	21

s											
old											
Old											
er	0.00	0	26.32	5	0.00	0	15.79	3	57.89	11	19

---

*Note:* The participants were asked to report on their past. #\* refers to # of participants.

## Appendix A

## Online Survey

## **Athletes' Openness to Sexuality**

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### **Start of Block: Informed Consent Statement**

#### **Q5 Informed Consent Form**

##### **Informed Consent Form**

##### **Introduction**

My name is Tereza Melicharkova and I am conducting this project at Lindenwood University, I am also enrolled in the PSY48000 Psychology Research Lab. The primary purpose of this study is to find out whether the proportion of lesbians among athletes differs from the general population.

##### **Procedures**

This survey focuses only on female participants. This survey asks you to respond to a few demographic items, as well as questions asking about your openness to sexuality, as well as about your sexual orientation. This questionnaire will be conducted with an online Qualtrics-created survey, and should not take any more 5 minutes of your time.

##### **Risks/Discomforts**

You may not feel comfortable about some of the questions I will ask. However, you can stop the survey at any time you would like to and skip any questions you wish not to answer.

##### **Compensation and Benefits**

You will gain experience taking part in a psychological survey project and potentially learn more about

the field. By taking this survey you could have better knowledge about women's sexuality and sexual orientation. By participating in my study, you could also feel more comfortable with the fact that it is alright to be open about your sexuality and sexual orientation.

### **Confidentiality**

No personally identifying information will be collected, including your IP Address. All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the researcher listed below and her course professor, Dr. Michiko Nohara-LeClair. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

### **Questions about the Research**

If you have questions regarding this study, you may contact me, Tereza Melicharkova at [tm787@lindenwood.edu](mailto:tm787@lindenwood.edu) or (636)288-9653 or direct your inquiries to the course professor, Dr. Nohara-LeClair at [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu) or (636)949-4371.

**ELECTRONIC CONSENT:** Please select your choice below.

Clicking on the "Agree" button below indicates that:

- You have read the above information.
- You voluntarily agree to participate.
- You are at least 18 years of age.
- You identify your gender as female.

Q6 I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

**Agree (1)**

**Do Not Agree (2)**

*Skip To: End of Survey If I have read, understood, and printed a copy of, the above consent form and desire of my own free... = <strong>Do Not Agree</strong>*

*Display This Question:*

*If I have read, understood, and printed a copy of, the above consent form and desire of my own free... = <strong>Agree</strong>*

Q7 How old are you?

I am at least 18 years old (1)

I am younger than 18 years old (2)

*Skip To: End of Survey If How old are you? = I am younger than 18 years old*

Q11 My gender is?

- Male (1)
- Female (2)
- Other (3)

*Skip To: End of Survey If My gender is? != Female*

**End of Block: Informed Consent Statement**

**Start of Block: Sexual Orientation/Openness to Sexuality**

Q13 How do you identify your sexual orientation?

- Heterosexual (1)
- Homosexual (2)
- Bisexual (3)
- Other (4)

Q10 To whom are you attracted today?

	Same gender (1)	Other gender (2)	Both (3)	Neither (4)	I do not know (5)
Choose one answer (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 How open are you to experience any kind of sexual interaction with a woman?

	Not at all (1)	Slightly (2)	Moderately (3)	Very (4)	Extremely (5)
Choose one answer (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 How open are you to experience any kind of sexual interaction with a man?

	Not at all (1)	Slightly (2)	Moderately (3)	Very (4)	Extremely (5)
Choose one answer (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16 Looking back at your life time, to whom have you been attracted to?

	Same gender (1)	Other gender (2)	Both (3)	Neither (4)	I do not know (5)
13-18 years old (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19-26 years old (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27-32 years old (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33-38 years old (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Older (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**End of Block: Sexual Orientation/Openness to Sexuality**

**Start of Block: Demographic questions**

Q17 How old are you?

- 18-22 years old (1)
- 23-27 years old (2)
- 28-32 years old (3)
- 33-37 years old (4)
- Older (5)



Q18 Are you an athlete?

Yes (1)

No (2)

*Skip To: Q21 If Are you an athlete? = No*

Q19 Which of the following best describes your sport?

Individual sport (e.g. tennis, golf, track and field) (1)

Team sport (e.g. rugby, soccer, basketball) (2)

Q20 What sport(s) do you currently play?

---

Q23 At what age did you start playing your sport(s)?

---

Q21 How much do you agree with the statement that there are more lesbians in team sports (e.g. rugby, soccer, ice-hockey, basketball) than in individual sports (e.g. tennis, golf, track and field)?

- Strongly Agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q26 How much do you agree with the statement that there are more lesbians among people who play sports than among the general population?

- Strongly Agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q25 What is your marital status?

Not Married (1)

Married (2)

Q14

Thank you for taking the time to complete this survey. The primary purpose of this study was to find out whether the proportion of lesbians among athletes differ from the general population. I am also interested to see if there are any differences among the team sports between individual sports. My hope is that the results of my research would lead to further research in this field, which ultimately can lead to improve understanding of the LGBTQ population.

I cannot provide you with individual findings due to the fact that this survey was conducted anonymously. However; I would be happy to answer any questions you may have about this study. Please feel free to contact me using the information below.

Thank you again for contributing data to my project!

Student Researcher:

Tereza Melichárková: tm787@lindenwood.edu

Faculty Supervisor:

Dr. Michiko Nohara-LeClair

636-949-4371

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**The Universal Image:  
Are Mental Images Formed Using Prototypes?**

*G. Adam Martz<sup>6</sup>*

*This study explores the formation of mental images. Two opposing theories are reviewed concerning what influences which specific examples we choose to picture when supplied with vague concepts. The more prominent “descriptive theory” assumes that mental images are formed using the same methods of categorization and recall that other mental processes follow. Due to the descriptive theory’s similarity to the linguistic concept of prototypicality, the mental images formed by twelve participants are examined to determine whether linguistic prototypicality or our personal preferences have a higher impact in how mental images develop. A wide degree of variance in how participants perceived the concepts of “Dog,” “Bird,” “Vehicle,” and “Toy” implied that linguistic prototypicality has less of an impact on the formation of mental images when participants imagine the details of a story than when prompted to examine the same concepts outside of a story-like context. This does not support theories that linguistic prototypicality plays a part on the formation of mental images.*

Imagination and mental images are neglected topics in the field of cognitive psychology and while much has been theorized, little is known about their internal processes (Shepard, 1978). Those theories that are accepted are often at conflict with one another. In the book, *The Imagery Debate* (Tye, 2000), he outlines that the crux of this conflict is that mental images can be thought of in two very different ways. Firstly, mental images can be compared to visual images. In this capacity, mental images are depictive. They occupy space on a mental canvas and can be manipulated. In the other school of thought mental images are depicted as linguistic descriptions. This theory envisions mental pictures as no more than a coalescence of our

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<sup>6</sup>G. Adam Martz, Psychology Department, Lindenwood University. This research would not have been possible without the assistance of Megan Hamilton and Nam Nguyen. Correspondence regarding this paper should be addressed to Adam Martz, Psychology Department, Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301. Gam754@Lindenwood.edu

understanding of the many qualities that make up the concepts we envision. In a fully descriptive view of mental imagery, mental pictures are fluid and take the shape of whatever descriptors are offered. In this way, they can be simultaneously broad and specific. This allows an individual to be able to picture something that is vague but that does not break with reality and is best exemplified by the mental pictures seen while dreaming (Tye, 2000).

The pictorial or depictive view of mental images argues that images are mapped out spatially when they are created. Looking at and manipulating mental images seems to follow the same rules as physically observing or manipulating an object normally would. In one experiment, Kosslyn (1975) showed the importance of these spatial attributes. He asked participants to imagine animals of varying sizes standing next to one another. He then asked them questions about one of the animals and assessed reaction times in the answers he received. When participants were asked questions about the details of smaller animals that they had been asked to imagine as close to larger ones, it took them a longer time to respond as they had to “zoom in” to their image to check the details. Likewise, response time was significantly shorter when asked about the larger animal as no zooming was required and the image was in full view of the participants “mental canvas,” (Kosslyn, 1975). The earliest criticisms of this model were the lack of evidence that the mechanics of the brain operated in any way reminiscent of how this theory proposes them (Margolis & Laurence, 2000).

On the other hand, descriptive theories are more generally accepted due to how they allow for the vague or ambiguous qualities that mental pictures seem to often have. Daniel Dennett, a cognitive scientist and philosopher who has spent much of his career tackling the problems of the imagery debate, argues that though we may use the parts of the brain that assist in receiving pictorial data to perceive mental images, they still are internally more akin do

conceptual descriptions (as cited in Huebner, 2018). Huebner (2018) goes on to account how Dennett used the example of a tiger to best illustrate this. Dennett argued that a picture of a tiger has a distinct number of stripes. They can be counted and found to be consistent on every occasion. If one were to imagine a tiger however, they need not have a set number or pattern of stripes. The tiger would be imagined as “a large orange and black striped cat.” It is enough for a mental image to have the concept of “striped-ness” and be consistent with the linguistic description of a tiger. If one were to be asked to count the stripes they imagine, the image would calcify and move from an ambiguous concept to a concrete one seamlessly so that stripes could be counted (as cited in Huebner, 2018).

Modern theories (see for example, Gibbs, 1992) imply that imagined images of common concepts are formed through the same methods of categorization and recall that other mental processes follow. Since the beginning of the imagery debate, much has been learned about what is happening in the brain when one imagines an image. The same imagery neurons that fire when observing something are now known to be firing during mental imaging of the same thing (Kreiman, Koch, & Fried, 2000). This supports the depictive model of mental imagery. Its support of previous theories that championed imagined images as being formed through the utilization of an extensive network of cognitive processes the brain uses for other purposes seemed to rectify the two theories. Evidence that the early cortex plays a role in mental imagery further supports depictive theories (Kosslyn, 1997)

Despite advancements that support mental images as being at the very least not fully descriptive, the linguistic model remains the strongest theory due to its lower number of flaws. Images or sensations conjured in an individual’s mind’s eye are now thought to be mental manipulations of both iconic and linguistic concepts an individual is aware of and are thought to

be based in the same cognitive processes as more traditional rational thought (Byrne, 2005). In my experiment, I plan to evaluate one possible method by which mental images may be created using linguistic depictions.

Prototypicality is currently accepted as one of the primary methods of linguistic categorization. According to prototype theory, certain examples of concepts are more central to our understanding of that concept (Laurence & Margolis, 1999). As such, there are certain traits that we innately perceive as core to a concept which leads to a consistent and universal linguistic definition of a thing being held by most people. Since Rosch and Mervis (1975) first postulated the theory, prototype theory has been received as both a groundbreaking change to the manner of categorization undertaken by classical theories but also flawed in its reliance on priming and failure to explain errors caused by ignorance (Laurence & Margolis, 1999).

Prototype theory offers up the possibility that our initial perceptions of a concept are universal. It follows then that if mental images are formed through the same processes as other linguistic concepts, that how a concept is specifically imagined might be reflective of the prototypical traits of that concept but is this accurate? Are mental images of common concepts related to personal experience or preference, or are they more universal and therefore suggestive of prototypical images? I expect the results of my research to support previous theories of prototypicality and to also show that these theories can be extended to the formation of mental images. This would further support mental images as linguistic descriptions by showing that they follow the same suspected rules regarding such.

## **Method**

### **Participants**

Data was collected from twelve participants. Of the participants, seven were in the experimental group and five were in the control group. Participants had an average age of 18.7 and were between the ages of 18 and 24. All participants were drawn from the Lindenwood Participant Pool. Of the participants, seven identified as female and five identified as male. There were six participants that identified as Caucasian or White, four that identified as Hispanic or Latino, one that identified as Black or African American, and one that identified as Asian or Pacific Islander.

### **Materials and Procedures**

We collected data in two separate locations on the Lindenwood campus, each with a table and two chairs. After participants signed up to volunteer for the study but prior to participating, participants were assigned a number by a random number generator. This number determined their status as either a member of the control or experimental groups. This left the possibility for uneven participant distribution among the groups but allowed for truly random samples.

Participants entered the research area and were greeted by the researcher. Two separate scripts for researchers gathering data from the control and experimental groups were used in order to create consistency in the way participants were instructed (see Appendices D and E). All participants were first offered one of two separate exempt information sheets initially explaining to participants that they would be participating in a study found to be exempt due to a low level of risk. These sheets differed in that the sheet for the control group (see Appendix A) informed participants that they would be giving examples for common concepts and the sheet for the



experimental group (see Appendix B) explained that they would be read a story while they imagined images. Both sheets reminded participants they could leave at any time.

Participants in the control group were next given the concepts of “Dog,” “Bird,” “Vehicle,” and “Toy” one at a time and asked to give what they believed was the single best example of that concept. These concepts were chosen for varying reasons. Dogs were chosen because they are the most common household pet and it was expected that participants would be highly familiar with varying breeds of dogs. Birds were chosen due to the fact that they were the primary focus of some of the earliest research into prototypicality (see Rosch and Mervis, 1975) and because it was expected that the average participant would have a lower level of familiarity with birds than with dogs. Vehicles were chosen due to them being an inanimate choice category with an extremely high level of expected familiarity. Lastly, Toys were chosen not only due to their low expectancy of familiarity but also due to the vagueness of the concept being expected to display a larger amount of variance. The researcher documented the participants answer in as much detail as possible for each of the four queries.

Participants in the experimental group were instead told to close their eyes and were primed to picture the stories they were about to be read (see Appendices D and E) in their minds. Researchers then read the stories in a clear, concise voice and at a methodical and rhythmic pace. After finishing each story, researchers asked the experimental group to describe in as much detail as they could what they imagined when prompted to picture “a dog” and “a bird” or “a vehicle” and “a toy”. The researchers documented the participants responses in as much detail as possible.

A demographic survey was given to both groups after the experiment was finished (see Appendix F). A survey meant to discern any personal connections that the participant may have had with their given answers was taken next (see Appendix G). Lastly, participants were given

prototypicality surveys listing several examples of each concept and asking them to rank these examples according to how typical the examples were of the concepts (Appendix H).

Following the surveys, participants were given a debrief form (see Appendix WE) further explaining the experiment they had participated in. Any questions participants had were answered.

## Results

In the free response section, the vast majority of answers seemed to be unique and personalized. For the concept of “Dog,” the experimental group ( $n = 7$ ) showed no similarity between answers (see Table 1). All participants imagined the dog in the scenario to be distinctly different breeds from those imagined by others in their condition. Those in the control group ( $n = 5$ ) had at least one instance of repeat response. The breed “Golden Retriever” was chosen by three of the five participants to be the breed most representative of the concept of “Dog.” The concept of “Bird” seemed to provide slightly more consistency. Of the twelve participants, there was one repeat response that was shared between control and experimental groups. “Cardinal” was recorded as both the best representative of the concept by two individuals and was imagined by a single participant. Three other answers were repeated among the experimental group; “Pigeon,” “Blue Jay,” and “Black Bird” were imagined twice. For the category of “Vehicle,” the most common response was by far “Car.” “Car” represented all but one of the answers in the control level and a third of answers in the experimental group as well. Responses for “Toy” featured only one repeat response in the experimental category; “Robot Toy.”

The connections to concept survey revealed that 58.3% of results in the control group were reported to have personal significance to participants (Appendix J). In the experimental group, 75% of results were reported to have personal significance. Data from both groups

showed that 77.7% of participants had connections to their answers for the categories of “Dog,” “Vehicle,” and “Toy.” The exception to this consistency was the category of “Bird in which only 44% reported connections to their answers.

Prototypicality weights were calculated from the results of the prototypicality survey ranging from 1 at the most prototypical to 12 at the least. In the category of “Dog,” “Golden Retriever” was found to be the most prototypical example of “Dog” with an average prototypicality score of 2.22 ( $SD = 1.31$ ) (Table 2). For the category of “Bird,” “Pigeon” was the most prototypical option among those on the survey (see Table 1) with an average prototypicality score of 4.55 ( $SD = 2.62$ ). In the category of “Vehicle,” by far the most prototypical answer was “Car” with a prototypicality score of 1.33 ( $SD = 0.66$ ) (Appendix K). Lastly, for the concept of “Toy,” the most prototypical answer was “Blocks” with a prototypicality score of 4.33 ( $SD = 2.31$ ).

### **Discussion**

Several conclusions can be drawn from the data. A high degree of variance (26 different answers) in experimental group implies a less unified process for the formation of mental images than would be expected if linguistic prototypes were affecting the image formation in the context of a self-directed story. Lower variance (15 different answers) in control group coupled with a more consistent clustering of answers with strong levels of prototypicality are consistent with answers being more prototypical outside of a story-like context. The control group had 3 repeated answers in “golden retriever” at 3, “car” at 4, and a single repeat of “cardinal.” Overall, it seemed participants in the control group were 24% more likely to respond with answers that had a high prototypicality weight (between 5.0 and 1.0).

Interestingly, there were instances where participants could not name what it was that they had pictured but rather were able to describe qualities of what they had seen. This implies weakly that they had more of an idea than an image in their mind's eyes. The low rate at which this occurred however makes any conclusions drawn from it inconclusive.

With regards to prototypicality results, lower means of the most prominent results in the categories of "Dog" and "Vehicle" compared to those found in "Bird" and "Toy" seem to imply that certain concepts are easier for participants to agree on than others. Dogs are considered common pets and it is likely that having a high rate of exposure to them lead to participants being more familiar with specific breeds and their variance or lack thereof from prototypical traits of the concept of "Dog." Furthermore, transportation via an array of vehicles is a reality in today's world leading to even non-drivers being familiar with more common examples of "vehicles" and associating what traits are relevant to the category. As cars are by far the most predominant vehicle used for everyday transportation, the open-ended nature of the wording in the stories led to participants picturing them even though no leading information was presented that would prompt such. Likewise, "cardinal" being the most common answer in "Bird" across both conditions was heavily implied via the connections to concepts survey to be due to the fact that participants were drawn from the St. Louis area, home of the St. Louis Cardinals baseball team.

Of the open-ended responses across both categories, only 25% of answers occurred more than once. When coupled with the relatively high rate of connections to concepts, this implies that more subjective options are chosen when creating open-ended mental images. Apart from the category of "Toy," in each of the categories, the most common free response answer was both on the prototypicality survey and the option with the highest average prototypicality weight

in its respective category. In the case of “Bird,” this was especially true with both “Cardinal” and “Pigeon” tying for the heaviest prototypicality weight and only being ranked by their respective standard deviations. Participants’ tendency to imagine examples with a high level of personal connection then seems to give more support to depictive theories.

That participants seemed to have a high rate of connecting to their answers is however not completely disqualifying of prototypicality. This is suggested by Rosch’s work (see for example, Rosch & Mavis, 1975) in the field as she determined that prototypicality was most likely localized and would vary based on what was common and in proximity. That is to say, certain traits might be universally prototypical but what examples embody these traits best is dependent on one’s familiarity with the concepts in question and their exposure to various possible examples of such concepts. Because of this, my results may be more indicative of the melting pot nature of the college population than of a break from the “universal image.”

Because of this, I believe that rather than stating individuals imagine either something meaningful to them or something prototypical, individuals imagine the most meaningful concept with a high level of assumed prototypicality. This is to say that an individual who often travels by bike might imagine a van rather than a bicycle or a car if someone with a level of familiarity to them travels by van because the concept would be more personal than the most prototypical answer and yet more prototypical than their most familiar mode of transportation. I believe this specific angle is worth further research.

This project was envisioned with free response being a key component of assessing mental images, but that key component ultimately created the most roadblocks for obtaining data that could be statistically tested. I had expected the vast majority of answers in the free response section to be overlapped with those examples provided to participants in order to determine

prototypicality. Instead, what I immediately was faced with was the reality that there seemed to be very little unification in what was imagined and that more than half of free response answers were not addressed on the prototypicality survey. This made it difficult to run statistical analyses on two of the study's primary focuses; those images that were pictured by those in the experimental group and those examples of concepts expressed by the control. Furthermore, I did not include a back-up manner of attaining prototypicality weights of free response answers not on the prototypicality survey.

Overall, I would like to continue this experiment in the future with slight modifications in protocol. Upon reflecting on my design, I feel there are many ways it can be improved upon to provide more specific data. Firstly, I would like to broaden lists of options for attaining prototypicality results. For instance, a list of 25 to 50 breeds of dog might be required in order to encompass the majority if not all encountered free response answers in that category. In this way I would be able to compare the average prototypicality scores of answers from the two groups of participants.

The second change I would make is in the manner I would calculate prototypicality weights. In a study performed by Uyeda & Mandler (1980), participants were given individual examples of concepts and asked to rank those examples on a scale of one to seven with regards to how prototypical they believed that example was of the given concept. This is different than the method used by Rosch and Mervis (1975) that I replicated in that it does not test relative prototypicality of similar examples and allows for a greater number of examples to be ranked without concern for comparison.

Lastly, I would like to expand the scope of the experiment in the future to explore both prototypicality and mental imagery on the subjects of race and gender assumptions. As the basis

for the original inspiration for this study, I feel that with the improvements I have already mentioned to the design, such would be worth exploring at length and could be received with an acceptable level of success.

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Table 1

Count of Free Response Answers

	<b>Control</b>	<b>Experimental</b>
<b>Dog</b>	Golden Retriever: 3, Corgi: 1, Basset Hound: 1	Beagle: 2, Border Collie: 1, Bulldog: 1, German Shepard: 1, Lab: 1, Shiatzu: 1
<b>Bird</b>	Cardinal: 2, Parrot: 1, Canary: 1, N/A: 1	Black Bird: 2, Pigeon: 2, Blue Jay: 2, Cardinal: 1
<b>Vehicle</b>	Car: 4, Mini Van: 1	Car: 2, Bus: 1, Double Decker Bus: 1, Mini Van: 1, SUV: 1, Truck: 1
<b>Toy</b>	Doll: 1, Action Figure: 1, Ball: 1, Toy Car: 1, Toy Drums: 1	Robot Toy: 2, Nintendo DS: 1, Toy Truck: 1, Stackable Rings on a Stick: 1, Wooden Figures: 1, N/A: 1

Table 2

## Average Prototypicality Scores (1.0-12.0)

	Mean Prototypicality	Standard Deviation
Labrador Retriever	6.88	2.6
Poodle	3.55	2.83
German Shepard	2.22	1.31
Golden Retriever	8.88	2.84
Chihuahua	8.22	2.82
Pug	6.33	2.27
Siberian Husky	7.44	1.95
Great Dane	9.22	1.93
Cocker Spaniel	8.11	3.18
Dachshund	7.66	2.36
Beagle	7.22	3.55
Rottweiler	5.22	3.76
Crow	6.77	2.57
Robin	10.88	1.85
Kiwi	10.00	2.71
Ostrich	5.00	3.77
Owl	5.77	2.25
Bald Eagle	5.22	1.99
Falcon	6.22	3.26
Parrot	4.55	2.91
Cardinal	6.22	3.52
Toucan	4.55	2.62
Pigeon	6.44	2.87
Sea Gull	1.33	0.66
Car	3.66	3.02
Jeep	3.66	1.49
Van	5.77	2.25
Motorcycle	9.33	3.42
Bicycle	5.22	2.90
Jeep	4.33	1.66
Bus	8.11	2.60
Airplane	8.77	2.17
Moped	9.33	1.73
Boat	7.88	1.61
Train	9.77	2.22
Tractor		

Blocks	4.33	2.31
Puzzle	6.55	2.65
Legos	4.33	2.83
Toy Car	4.33	2.58
Toy Train	6.44	3.17
Action Figure	5.88	2.15
Doll House	7.77	3.27
Ball	4.55	3.57
Stuffed Animal	6.55	3.32
Top	10.00	1.41
Doll	6.33	4.06
Tablet	9.90	2.42

Blocks	4.33	2.31
Puzzle	6.55	2.65
Legos	4.33	2.83
Toy Car	4.33	2.58
Toy Train	6.44	3.17
Action Figure	5.88	2.15
Doll House	7.77	3.27
Ball	4.55	3.57
Stuffed Animal	6.55	3.32
Top	10.00	1.41
Doll	6.33	4.06
Tablet	9.90	2.42

## Appendix A

### Control Script

### Procedure

- Greet participants and have them sign our sign-in sheet.
- Give participants Exempt Information Sheets. Let them read. As they are reading, briefly go over what they will be doing. “Thank you for participating in our Research Study. In this study we are evaluating if Mental Images are formed in a similar manner to Linguistic Prototypes. What this means for you is that I will be asking you what you believe is the best example for a number of concepts. It is your choice if you participate in this study. You may choose not to participate at any time.” After you have spoken to the participant and the participant signs the sheet, collect it and continue to the next step. If they do not sign and decide not to participate, the procedure ends here.
- “Thank you. Let’s begin. What do you think is the best example of a “Dog?” If asked for clarification, state that we would like to know the specific breed that best represents the concept of “Dog”. If they are unsure, you may ask non guiding questions to help the participants (ie. “Was it a big dog or a small dog? What color was it? Did it have a long snout or a flat one? Was it’s a long hair or a short hair?”) Try not to ask specific questions like “was it a golden retriever?” unless participants state that they can clearly picture what they saw but don’t know what to call it. Record the answer on your data sheet.
- “What do you think is the best example of a “Bird?” Again, we are looking for a specific kind of bird (such as a crow, falcon, pigeon, owl, etc.) If they are unsure, you may ask non guiding questions to help the participants. Record the answer on the Data Sheet.
- “What do you think the best example of a “Vehicle” is?” We are looking for a specific kind of vehicle (such as a car, train, bus, airplane, etc.) We are not looking for brand of vehicle (Toyota, Ford,

Boeing, etc). If they are unsure, you may ask non guiding questions to help the participants.

Record the answer on the Data Sheet.

- “What do you think the best example of a “Toy” is?” We are looking for a specific kind of toy. If they are unsure, you may ask non guiding questions to help the participants. Record the answer on the Data Sheet.
- Give the participant our demographic survey and ask them to fill it out. Retrieve it when finished.
- Give the participant our “Connections to Concepts survey and ask them to fill it out. Feel free to answer any questions the participants may have about the meaning of this survey. Remember, this survey is meant to determine if any of the answers the participants pictured had any personal significance to them. Perhaps they used to build model trains; this would have been relevant to the fact that they pictured a train for “Vehicle”. Perhaps they are a sports fan and saw a Cardinal for “Bird”. Perhaps they really like Poodles and pictured a Poodle for “Dog”. Retrieve it when finished.
- Give the participant our “Prototypicality survey”. Explain to them that this survey is not related to what they pictured but rather that it will be used to determine what good examples of the given concepts are. “Please order the following examples according to how well they represent the concepts. The example you select as 1 should be most representative of the concepts. The example you select as 12 should be least representative of the concepts. Retrieve it when finished.
- Give participants the “Debrief Letter” and ask them if they have any questions about our study. Try to answer any questions they may have. When they no longer have any, thank them for their participation and the procedure ends.

## Appendix B

### Experimental Script

#### Procedure

- Greet participants and have them sign our sign-in sheet.
- Give participants Exempt Information Sheets. Let them read. As they are reading, briefly go over what they will be doing. “Thank you for participating in our Research Study. In this study we are evaluating if Mental Images are formed in a similar manner to Linguistic Prototypes. What this means for you is that I will be reading you a story while you close your eyes and imagine the events I describe to you. I will then ask you questions about how you imagined the stories you were read. It is your choice if you participate in this study. You may choose not to participate at any time.” After you have spoken to the participant and the participant signs the sheet, collect it and continue to the next step. If they do not sign and decide not to participate, the procedure ends here.
- “Thank you. I will now read you the first story. While I read it, please close your eyes and try to picture the events you hear inside your mind.” Read the following at a slow but natural pace, pausing to give participant’s time to picture the events. Be sure to read clearly. Try to develop a speaking pattern with it that you will use with all participants.

“Jackie was walking the dog when they came upon a bird standing on the ground. Excited, Jackie’s dog ran up to the bird and startled it. The bird quickly took off and almost ran into Jackie’s face as it passed. Jackie smiled at the dog and the two watched as the bird disappeared into the distance.”
- “You may now open your eyes.” Ask the participant, “Now, when you pictured that scene, what type of dog did you picture?” If asked for clarification, state that we would like to know the specific breed they imagined. If they are unsure, you may ask non guiding questions to help the participants (ie. “Was it a big dog or a small dog? What color was it? Did it have a long snout or a flat one? Was it’s a long hair or a short hair?”) Try not to ask specific questions like “was it a

golden retriever?” unless participants state that they can clearly picture what they saw but don’t know what to call it. Record the answer on your data sheet.

□ “What about the bird? What type of bird did you picture?” Again, we are looking for a specific kind of bird (such as a crow, falcon, pigeon, owl, etc.) If participants have trouble identifying the type of bird that they saw, you may again ask non-guiding questions to help them determine the bird they pictured. Record the answer on the Data Sheet.

□ “I will now read you the second story. Again, as I read it to you, please close your eyes and try to picture events you hear inside your mind.” Again, read the following clearly at a slow, natural pace.

“Alex would rather have been at home. It was rainy, and the ride thus far had been rather choppy. The vehicle would safely deliver Alex to the destination, but it would be much more relaxing to be at home watching over the twins. They would be sitting on the floor just about now, engrossed in their favorite toy. Alex could picture them smiling as they played with it. The thought of them playing brought a smile to Alex’s face.”

□ “You may now open your eyes.” Ask the participant, “Now, when you pictured that scene, what type of vehicle did you picture Alex inside of?” We are looking for a specific kind of vehicle (such as a car, train, bus, airplane, etc.) We are not looking for brand of vehicle (Toyota, Ford, Boeing, etc). I do not expect any participant to not be able to identify what type of vehicle they pictured but if this happens, use the same non-leading questions you have used up until now. Record the answer on the Data Sheet.

□ “What about the toy? What type of toy did you picture the children playing with?” We are looking for a specific kind of toy the participant pictured. The concept of “toy” is rather vague and can be applied to almost anything found enjoyable. Accept any answer given. If participants have trouble identifying what they pictured, you may again ask non-guiding questions to help them determine it. Record the answer on the Data Sheet.

□ Give the participant our demographic survey and ask them to fill it out. Retrieve it when finished.



- Give the participant our “Connections to Concepts survey and ask them to fill it out. Feel free to answer any questions the participants may have about the meaning of this survey. Remember, this survey is meant to determine if any of the answers the participants pictured had any personal significance to them. Perhaps they used to build model trains; this would have been relevant to the fact that they pictured a train for “Vehicle”. Perhaps they are a sports fan and saw a Cardinal for “Bird”. Perhaps they really like Poodles and pictured a Poodle for “Dog”. Retrieve it when finished.
- Give the participant our “Prototypicality survey”. Explain to them that this survey is not related to what they pictured but rather that it will be used to determine what good examples of the given concepts are. “Please order the following examples according to how well they represent the concepts. The example you select as 1 should be most representative of the concepts. The example you select as 12 should be least representative of the concepts. Retrieve it when finished.
- Give participants the “Debrief Letter” and ask them if they have any questions about our study. Try to answer any questions they may have. When they no longer have any, thank them for their participation and the procedure ends.

## Appendix C

## Exempt Information Sheet Control

**LINDENWOOD****Research Information Sheet**

You are being asked to participate in a research study. We are doing this study to explore whether mental images are formed in a manner that aligns with theories of prototypicality. During this study you will be given a number of concepts and be prompted to give the best example for such a concept. Afterwards, you will be asked to fill out three short surveys. It will take about 10 to 15 minutes to complete this study.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

If you are in the LPP you will receive two extra credit points in the course for which you signed up for the LPP. You will receive extra credit simply for completing this information sheet. You are free to withdraw your participation at any time without penalty. Participants who are not part of the LPP will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

**Who can I contact with questions?**

If you have concerns or complaints about this project, please use the following contact information:

Adam Martz at Gam754@Lindenwood.edu

Megan Hamilton at Mth728@Lindenwood.edu

Nam Nguyen at [Ndn585@Lindenwood.edu](mailto:Ndn585@Lindenwood.edu)

Michiko Nohara-LeClair at [Mnohara-leclair@Lindenwood.edu](mailto:Mnohara-leclair@Lindenwood.edu)

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or [mleary@lindenwood.edu](mailto:mleary@lindenwood.edu)

## Appendix D

## Exempt Information Form Experimental

**LINDENWOOD****Research Information Sheet**

You are being asked to participate in a research study. We are doing this study to explore whether mental images are formed in a manner that aligns with theories of prototypicality. During this study you will be asked to close your eyes and imagine the events in a story being read to you. You will then be asked to describe the mental images you pictured. Afterwards, you will be asked to fill out three short surveys. It will take about 10 to 15 minutes to complete this study.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

If you are in the LPP you will receive two extra credit points in the course for which you signed up for the LPP. You will receive extra credit simply for completing this information sheet. You are free to withdraw your participation at any time without penalty. Participants who are not part of the LPP will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

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Michiko Nohara-LeClair at Mnohara-leclair@Lindenwood.edu

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.



Appendix F

Connections to Concepts Survey

**Connections to Concepts Survey**

1) Have you ever owned a dog of the breed that you listed for the purposes of this study or otherwise had an experience that would make that breed meaningful to you in some way?

2) Have you ever owned a bird of the type that you listed for the purposes of this study or otherwise had an experience that would make that type of bird meaningful to you in some way?

3) Have you ever owned a vehicle of the type that you listed for the purposes of this study or otherwise had an experience that would make that type of vehicle meaningful to you in some way?

4) Have you ever owned a toy of the type that you listed for the purposes of this study or otherwise had an experience that would make that kind of toy meaningful to you in some way?



## Appendix G

## Prototypicality Survey

**Prototypicality Survey**

1) Please order the following examples according to how well they represent the concept of “Dog”. The example you select as (1) should be most representative of the concept of “Dog”. The example you select as (12) should be least representative of the concept of “Dog”. If you are unfamiliar with one or more of the options, please inform the researcher and an image will be shown.

Labrador Retriever

Poodle

German Shepherd

Golden Retriever

Chihuahua

Pug

Siberian Husky

Great Dane

Cocker Spaniel

Dachshund

Beagle

Rottweiler

2) Please order the following examples according to how well they represent the concept of “Bird”. The example you select as (1) should be most representative of the concept of “Bird”. The example you select as (12) should be least representative of the concept of “Bird”. If you are unfamiliar with one or more of the options, please inform the researcher and an image will be shown.

Crow

Robin

Kiwi

Ostrich

Owl

Bald Eagle

Falcon

Parrot

Cardinal

Toucan

Pigeon

Sea Gull

3) Please order the following examples according to how well they represent the concept of “Vehicle”.

The example you select as (1) should be most representative of the concept of “Vehicle”. The example you select as (12) should be least representative of the concept of “Vehicle”. If you are unfamiliar with one or more of the options, please inform the researcher and an image will be shown.

Car

Jeep

Van

Motorcycle

Bicycle

Truck

Bus

Airplane

Moped

Boat

Train

Tractor

4) Please order the following examples according to how well they represent the concept of “Toy”. The example you select as (1) should be most representative of the concept of “Toy”. The example you select as (12) should be least representative of the concept of “Toy”. If you are unfamiliar with one or more of the options, please inform the researcher and an image will be shown.

Blocks

Puzzle

Legos

Toy Car

Toy Train

Action Figure

Doll House

Ball

Stuffed Animal

Top

Doll

Tablet

## Correlational Study between Emotional Intelligence and the Use of Online Dating.

*Aleksander E. Mansdoerfer<sup>7</sup>*

*This study sought to answer if there is a correlational relationship between an individual's emotional intelligence quotient and individual use of dating applications such as tinder or bumble. Participants from the Lindenwood University Participant Pool and the researcher's social network were asked to answer anonymously to a two-part survey. The first part of the survey had the participants self rate their emotional intelligence by answer nineteen questions, and the second part of the study asked questions about an individuals habits and experience with online dating applications. A total of 77 participants completed the study, and their ages ranged between 18 and 55 years old. Upon the completion of statistical analysis, no statistically significant was found though more data could be collected and*

The experience of finding a suitable mate has regularly changed based on the social or cultural advancements of the time. In prehistoric times, it was likely based more about strength and competition. With the introduction of civilization more complex rules came into play regarding finding a mate. A few decades ago individuals could send in personality questionnaires to a company would find them potential "matches" (Schwartzman 2013). In today's age of cellular devices, those over the age of 18 can consent to dating applications on their phones and be part of the massive sociological phenomena of assessing compatibility with those up to 100 mi away. This advancement, as some would call it, cuts out the middle company and opens the selection process to find a potential mate to the widest it has possibly ever have been.

In the past decade and a half, psychologists and sociologists have begun asking some questions in an effort to understand the current era of dating and the introduction of dating apps and social media. One of the first examinations of those who use the new dating world looked

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into the website MySpace and the engagement of users in romantic conversations on the platform. In a study of Californian undergraduate students, Dong, Urista & Gundrum (2008) found that those who had high self-esteem were less likely to engage in online romantic conversations, and in turn those with a lower self-esteem were more likely to engage. Though their research was limited to one university, it started a particular mode of thinking that was investigated by other researchers (Dong et al. 2008). In a similar but more comprehensive study, Rosen, Cheever, Cumming & Felt (2007) expanded the investigation from trying to understand the new phenomena to doing a compare and contrast between traditional live dating and using and online service or app. What they found is that those in both realms of dating often base their decisions off of similar factors specifically image and age. However, the romantic occurrences in the online dating platforms progressed much faster than the traditional dating ones (Smith & Anderson, 2016).

The idea behind this is that those online are more willing to self-disclose were going to be able to maintain a strong healthy conversation that could take place in a continuous fashion over the period of a few days. However, since traditional daters preferred the face-to-face interaction and relied on aligning schedules and the immediate possibility of rejection the relationships took longer to develop (Rosen et al. 2007).

That willingness to self-disclose is the key for any relationship, and especially so for those where your interactions with someone are based on messages as opposed to face-to-face interaction. One could argue that the better one was at self-disclosing and presenting themselves and reading other people that may contribute to the rapid advancement of relationships that start online. In Goleman's novel (1995) Emotional Intelligence is described as having four branches: perception of emotions, facilitating thought through emotion, understanding emotion, and

managing emotion. Goleman (1995) goes on to explain how emotional intelligence is a separate and distinct from a standard intelligence score, even going so far as to assess that Emotional Intelligence is a much better indicator as to whether or not someone gets promoted at work, let alone gets hired in the first place. But what about whether or not someone gets a date, especially as the dating world continues to evolve into a more digital experience? At the time, they found that just like self-esteem, emotional intelligence was negatively correlated with using MySpace for romantic conversations (Dong et al., 2008). Beranay, Oberst, Carbonell, & Chamarro (2009) asked the question, what kind of people use the Internet and social media in general? Although their study specifically examined college students in the social science fields at a particular university, they were able to support their hypothesis that those who regularly engage in internet use are more prone to exhibit social disorders as described in the DSM-V. In more specific terms, the students were more likely to exhibit less self-esteem, more loneliness, more depression, and anxiousness, sleep deprivation (Beranay, et al. 2009).

Despite the research that was done in the beginning of social media, researchers continued to ask the questions to understand a trend that was not slowing down, especially with the firestorm that was Tinder that took the world in 2012. In the years since the formation of Tinder, the perception of online dating has gained some popularity and support among the general population (Smith & Anderson 2016). As part of this surge, a group of researchers found that those who are extraverted, open to new experiences, comfortable with internet usage, and secure in their attachments, would be more likely to experiment with online dating (Blackhart, Fitzpatrick, & Williamson, 2014). Of the subjects that responded to various questionnaires, 66% felt that the rise of dating apps granted them a sense of “control” over their dating experience. One could argue that in a world without smartphones that meeting the “right one” was based on

hundreds of variables and circumstances far outside of an individual's control. For example, in a romantic movie the characters might 'magically' meet on a bus because the other one had their car not start that particular morning. Instead, with the introduction of dating applications, that magical happenstance is greatly reduced. This change in perspective could definitely be contributing to the steady rise of the trends (Hobbs, Owen, & Gerber 2017). Hobbes et al. (2017) showed that there was perhaps more to be gained from the evolution of dating than the service being more for those who are anti-social as Dong et al. (2008) and Rosen et al. (2007) suggested. In addition, one of the more recent pieces of research regarding the relationship between emotional intelligence and online dating took the question a step back. Is there even a relationship at all between dating and emotional intelligence? Smieja and Stolarski (2016) were able to draw a limited conclusion that there was evidence for assortative dating based on emotional intelligence with the strongest amount of support for one's ability to perceive emotions as the strongest indicator of one's dating trends and patterns.

As time continues to pass, and more apps like Tinder, Bumble, Grindr, Match.com, and dozens of other dating services enter the market and gain in varying amounts of popularity, we as researchers should continue to adapt and gain more information. Because of this inherent demand of a changing environment, and the recent research that demonstrates a change from the initial hypotheses, my research project seeks to add further data. My hypothesis is that those who use online dating apps and meet people will have a higher emotional intelligence than those who do not use the dating apps or do not meet people through the apps they do use. To accomplish this, participants over the age of 18 will be anonymously asked to complete a four-part anonymous survey that will ask them to self-rate their emotional intelligence based on 19 questions, followed by a series of questions about their use of online dating applications.



## **Method**

### **Participants**

Eighty-Three adults over the age of 18 (27 men, 54 women, 2 other), Mode: 18-24 years old) were recruited through the Lindenwood Participant Pool via Sona Systems and through the social media service Facebook. Participants that were recruited through the Lindenwood Participant Pool received 1 point of extra credit for their participating course. Individuals that were recruited through Facebook received no compensation. All participants took the same survey.

### **Materials and Procedures**

The survey that was given to participants was created on Qualtrics on April 18<sup>h</sup>, 2019, and was made up of four parts. The first part of the survey was the consent form and demographic questions including the age range they fell within, and their gender. Upon completing the demographic and consent forms, the participants were given the Self-Related Emotional Intelligence Scale, Bracket et al (2006) (Appendix 1). Brackett et al. (2006) did their own emotional intelligence assessment back in 2006 that broke down emotional intelligence into 19 questions. Upon completing the Self-Rated Emotional Intelligence scale, Participants will be asked a series of questions I, as the researcher, gauged their use of reasoning for use or not use of dating apps and if they achieved they have ever or are currently achieving the desired reasons for originally beginning to use the dating applications.

## **Results**

Upon the completion of the recruitment period, the number data collected was downloaded from Qualtrics. The first test was descriptive statistics of the Emotional Intelligence score ( $M=64.6506$ ,  $SD=8.5859$ ), Age (Mode: 18-24), and what number of the sample had used a

dating app before hand (No=32, Yes=51). In addition, as part of the research I asked participants who had answered 'Yes' (Y=51, N=32) to using a dating app before, how far their interactions went (Table 1), and what their intentions were for using the dating app (Table 2). Participants were able to give multiple responses to their motivations for using a dating app thus the results totaling more than 83. Finally, a one-tailed *t*-test assuming unequal variances was applied to the Emotional Individual Emotional Intelligence scores and how far the individuals went with their interactions ( $t(43) = .4258, p = .3362$ ) (Table 3). The data that resulted from the analysis demonstrated that there was not a statistically significant correlational relationship between Emotional Intelligence and dating app usage, resulting in a failure to reject the null hypothesis.

### **Discussion**

The results of my statistical test did not support my hypothesis that those who use dating apps are less emotionally intelligence, and those that do use it find my success with a greater emotional intelligence. I believe this could have been due to some data collection errors. The first error of my study is the result of using a self-rated emotional intelligence test. At the beginning of my research I discovered that there are companies online that charge hundreds of dollars to asses the emotional intelligence of employees at a particular business, and these emotional intelligence test take hours to complete because they are administered by trained staff using a variety of methods. My study relied on individuals assessing themselves and being honest as part of a fifteen minute survey. Without increased funding and human resources doing a large scale more accurate test could be difficult. In addition, there was a large gap in responses from the 25-44 age groups. These two interesting pieces of data gives me an insight as a researcher into a combination of two postulated explanations: My social media connections has a large age group gap, and potentially those in the age group 25-44 are potentially less likely to

respond to surveys that may be related to their personal dating habits. I think in a future study I could potentially find more statistically significant results by expanding my study to include more participants. One of the ways I could do this is sharing the study on social media pages for singles of all age groups. In addition, expanding my emotional intelligence test to be more interactive such as actually having a participant do the things they were asked about their capability of doing could cut out some of their personal bias about their own abilities. Finally, my study was posted very late in the semester and was not available for very long. If I were to repeat this study, I would need to spend a significant amount of more time preparing so that the study could be available for longer so that more people could access it. Though there is still a possibility my hypothesis will remain unsupported, by doing these things I can be more confident in my results. I plan on continuing to research emotional intelligence and online dating trends independently and review this study at a later date.

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Table 1

How far Online Interactions Progressed

Never met in real life	35
Met for Coffee	8
Had a few dates	7
One night Stand	10
Long Term Relationship	10
Married	3
Not applicable.	10

Table 2.

## Reason for using a Dating App

Looking for a relationship	59
To go on dates	45
Sex	18
Making new Friends	28
An Excuse to Go out	14
To get a free meal	8
Marriage	12

Table 3

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	60.65625	59.94117647
Variance	75.71673387	23.17647059
Observations	32	51
Hypothesized Mean Difference	0	
df	43	
t Stat	0.425775663	
P(T<=t) one-tail	0.33619748	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.67239496	
t Critical two-tail	2.016692199	

## Appendix 1

## Qualtrics Survey

 **Emotional Intelligence and Dating Apps**

---

**Start of Block: Default Question Block**

## Q12 Informed Consent Form

## Introduction

The researcher conducting this project is an undergraduate student at Lindenwood University who is enrolled in the PSY48300: Senior Thesis course. The purpose of this survey is to gather data regarding individual emotional intelligence and their use of dating apps. The results of this survey will be published at the Lindenwood University Research Conference.

## Procedures

This survey asks you to respond to a few demographic items as well as questions that will assess Emotional Intelligence and about your feelings and use of dating apps. This survey can be used in order to see whether there is a relation between Emotional Intelligence and a person's use



of dating apps. This questionnaire will be conducted with an online Qualtrics-created survey, and should not take any more than 10-15 minutes of your time.

#### Risks/Discomforts

There are no known risks associated with this study, because no personally identifiable data is being collected at any point, thus there is no risk of dating habit data being disclosed. If you do not feel comfortable completing any part of this survey, you are free to skip any questions or withdraw without penalty.

#### Compensation and Benefits

If you are a Lindenwood student recruited through the Lindenwood Participant Pool (LPP) you will earn 1 bonus point toward your LPP participating course. If you are not recruited through the LPP you will receive no compensation. However, you will also gain experience taking part in a psychological survey project and potentially learn more about the field. There will also be a score presented at the end of the survey that will represent your emotional intelligence quotient. If you are interested in learning more about this project or would like to learn about the results of this project once completed, please contact Aleksander Mansdoerfer at [AEM987@Lindenwood.edu](mailto:AEM987@Lindenwood.edu)

#### Confidentiality

No personally identifying information will be collected, including your IP Address. All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All

questionnaires will be concealed, and no one other than the researchers listed below and their course professor, Dr. Michiko Nohara-LeClair. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

**Questions about the Research** If you have questions regarding this study, you may contact Aleksander Mansdoerfer at AEM987@Lindenwood.edu or direct your inquiries to the course professor, Dr. Michiko Nohara-LeClair at mnohara-leclair@lindenwood.edu or (636) 949-4371.

**ELECTRONIC CONSENT:** Please select your choice below.

Clicking on the "Agree" button below indicates that you have met all of the criteria below:

- You have read the above information.
- You voluntarily agree to participate.

Agree (1)

Disagree (2)

Skip To: End of Survey If Informed Consent Form Introduction The researcher conducting this project is an undergraduate s... = Disagree

Q11 How old are you?

18-24 (1)

25-30 (2)

31-35 (3)

36-40 (4)

41-45 (5)

46-50 (6)

55-60 (7)

60+ (8)

**End of Block: Default Question Block**

---

**Start of Block: Block 2**

Q1 The following set of items pertains to your insight into emotions. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future.

		Rating Scale		
			Neither	
Very	Moderately	Inaccurate	Moderately	Very
Inaccurate	Inaccurate	nor	Accurate (4)	Accurate (5)
(1)	(2)	Accurate (3)		

By looking at  
a person's  
facial  
expressions,  
I recognize  
the emotions  
he or she are  
experiencing.

(1)

I am a  
rational  
person and I  
rarely, if  
ever, consult  
my feelings  
to make a  
decision. (2)

I have a rich  
vocabulary  
to describe  
my  
emotions. (3)

I have  
problems  
dealing with  
my feelings  
of anger. (4)



When  
someone I  
know is in a  
bad mood, I  
can help the  
person calm  
down and  
feel better  
quickly. (5)



I am aware  
of the  
nonverbal  
messages  
other people  
send. (6)



When making decisions, I listen to my feelings to see if the decision feels right.

(7)

I could easily write a lot of synonyms for emotion words like happiness and sadness.

(8)



I can handle stressful situations without getting too nervous. (9)



I know the strategies to change or improve other people's moods. (10)



I can tell when a person is lying to me based on his or her facial expressions.



(11)



I am a  
rational  
person and  
don't like to  
rely on my  
feelings to  
make  
decisions.

(12)

I have the  
vocabulary  
to describe  
how most  
emotions  
progress  
from simple  
to complex  
feelings. (13)



I am able to  
handle most  
upsetting  
problems.

(14)



I am not very  
good at  
helping  
others to feel  
better when  
they are  
feeling down  
or angry.

(15)



My quick  
impressions  
of what  
people are  
feeling are  
usually  
wrong. (16)



My "feelings"

vocabulary is

probably

better off

than most

other

peoples'

"feelings"

vocabulary.

(17)

I know how

to keep calm

in difficult or

stressful

situations.

(18)



I am the type  
of person to  
whom others  
go to when  
they need  
help with a  
difficult  
situation.  
(19)

End of Block: Block 2

---

Start of Block: Block 3

Q2 What gender do you identify as?

- Male (1)
- Female (2)
- Other (3)
- Prefer not to say (4)

Q4 How often are you on the Internet?

- Never (1)
  - Rarely (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q5 Have you ever used a dating app or website?

- No (1)
  - Yes (2)
-

Q6 What is, or would be, your intention on a dating app or website? Select all that apply.

- A relationship (1)
  - To go on dates (2)
  - A One night stand (3)
  - Make new friends (4)
  - An excuse to get out (5)
  - To get a free meal (6)
  - Marriage (7)
  - To learn what you are looking for in a partner (8)
  - Other (9) \_\_\_\_\_
  - Not Applicable (10)
-

Q7 Have you ever met someone in real life you met online? And if so how far did the interactions go?

- No (1)
  - Once, just for coffee (2)
  - A few dates (3)
  - Hooked up with someone (4)
  - Had a long term relationship (5)
  - Married the person (6)
  - Not applicable (7)
-

Q8 How likely are you to recommend a dating app(s) or website to another person?

- Extremely likely (1)
  - Moderately likely (2)
  - Slightly likely (3)
  - Slightly unlikely (4)
  - Moderately unlikely (5)
  - Extremely unlikely (6)
-



Q9 Which dating app have you used? Check all that apply

Tinder (1)

Bumble (2)

Grindr (3)

Plenty of Fish (4)

Match.com (5)

League (6)

Religion specific dating services. (7)

Farmersonly (8)

OKcupid (9)

Other (10) \_\_\_\_\_

**End of Block: Block 3**

---

**Start of Block: Block 1**

Q14 Feedback Letter

Thank you for participating in my study. The results will be used in order to determine if there is a correlation between a person's emotional intelligence and whether or not they use

online dating apps.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of responses, of which you are now a part of. No identifying information about you will be associated with any of the findings. Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:

Aleksander Mansdoerfer 314-477-8484 (AEM987@lindenwood.edu)

Supervisor:

Dr. Michiko Nohara-LeClair 636-949-4371 (mnohara-leclair@lindenwood.edu)

**End of Block: Block 1**

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**Start of Block: Block 4**

Q17 The Emotional Intelligence Quotient (EQ) displayed next is based on your answers and based on a 95-point system. EQ is distinct from a standard intelligence quotient (IQ) as standard IQ refers to your ability to acquire, process, and apply new information, Whereas EQ is your ability to: understand/express your own feelings, understand other people's motions, regulate your own emotions in a healthy way, and assist others in working through their own emotions. For the 95-point system, the higher the score, the higher the EQ.

## Gender Inclusivity and Discrimination on College Campuses:

### Focusing on Gender Nonconforming Students

Mariah Palmer<sup>8</sup>

*Previous research reveals that transgender individuals suffer with greater mental health concerns than cisgender individuals (Borgogna, McDermott, Aita, & Kridel, 2018). Moreover, transgender and gender nonconforming students are experiencing more difficulty in college than their cisgender peers. The data show that transgender students experience greater levels of trauma, stressors in life, harassment, and discrimination (Greathouse et al., 2018; James et al., 2016; Swanbrow Becker et al., 2017). Further, James et al., (2016) found that the climate on campus has led some transgender students to drop out of their higher education institute. The current research examined both transgender or gender nonconforming (n = 19) and cisgender students (n = 139). The purpose of this research was to gather information on the experiences and perceptions of these students in order to give institutions further information and suggestions on how to improve campus environment. The results of this research were somewhat consistent with previous research mentioned in the literature review.*

*Keywords: transgender, gender nonconforming, college students, discrimination*

According to the Williams Institute (2019), there is estimated to be over 1,000,000 transgender individuals in the United States. Moreover, transgender individuals are often excluded from research, making their identities invisible in academia and in day-to-day life (Greathouse et al., 2018). The research findings, however, currently tell that transgender and gender nonconforming individuals are at higher risk of poor mental health than when compared to cisgender individuals (Borgogna et al., 2018). Another intersectionality for these individuals is that of college participation. According to the National Survey of College Counseling Centers,

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a higher number of clinicians reported an increase than a decrease or no change in clients experiencing anxiety disorders, crisis issues, and depression, than when compared to five years ago (Gallagher, 2015). If we know that those who are transgender and gender nonconforming are at a risk for poor mental health, and we know that this is also true for college students, one could guess that the lives of college transgender and gender nonconforming students may incorporate distress.

The definitions of transgender and gender nonconforming may be used interchangeably, but not in all cases. Typically, the term transgender is used to describe individuals who have a gender identity which contests the traditional norms for the sex they were assigned at birth (Halley & Eshleman, 2017; Transgender, 2019). Gender nonconforming often refers to individuals who do not conform to gender expectations (Human Rights Campaign, 2019). The current research study will use the terms interchangeably. Another term that will be utilized within this research is cisgender. Cisgender identifies a person that is not gender nonconforming or transgender, meaning that their gender is consistent with either the gender they were assigned at birth, or their biological sex (Halley & Eshleman, 2017).

It is known that transgender students experience greater trauma, life stressors, discrimination, and harassment on campus compared to their peers (Greathouse et al., 2018; James et al., 2016; Swanbrow Becker et al., 2017). In a survey which questioned a total of 23,987 college students, researchers wanted to examine the implications of clinical support for students who were transgender. Out of those participants, 0.2% self-identified as transgender, which is a moderately representative percentage for the population. The researchers pulled the survey data from The National Research Consortium of Counseling Centers in Higher Education, which was collected in the year 2011. Upon reviewing the data, they found support for their

hypotheses that transgender students would experience more trauma and life stressors. More specifically, they found that transgender students had higher rates of attempted suicide and suicide ideation, higher concern for gender identity, higher emotional health issues, and discrimination, among other items when compared to cisgender students.

The U.S. Transgender Survey (2015) reported further statistics on transgender students. The survey evaluated by James et al., (2016) was broad and focused on 27,715 transgender respondents. While their primary focus was not strictly on transgender students, they were still able to provide some information regarding this population. The results of this research specify that those others perceive as transgender, 24% faced some form of harassment on their higher education campus. The harassment noted in this survey ranged from physical, sexual, and verbal abuse. Within the group of participants that said they had faced harassment on campus, 16% responded that they had dropped out or left their higher education institute. The data clearly suggest individuals who identify as transgender face discrimination while attending college (James et al., 2016).

Greathouse et al. (2018) examined the experiences of queer individuals while at their higher education institutes and found further support to show the struggles of these individuals as a direct result of the institution. Their data were pulled from a compiled set of multiple previous studies on queer and transgender spectrum college students. When asked about campus climate, transgender individuals consistently reported fewer positive perceptions than when compared to their cisgender peers. For the question which wanted to know which participants felt that their campus was safe, on 33.1% agreed and only 39.8% thought that their campus was welcoming. Moreover, only 23.3% of transgender students felt like they were valued on campus and only 37.8% responded that they felt they belonged. It is important to note that their cisgender peers

reported that they did feel safe (55.3%), welcomed (64.6%), valued (36.0%), and 54.0% felt as if they belonged. These researchers also concluded that transgender spectrum students not only feel a more negative climate on campus, but also that they engage less with their campus than cisgender students do (Greathouse et al., 2018).

The prior research gives reason to encourage change on campuses of higher education. The current research will look at how transgender and gender nonconforming students have experienced college. The perceptions and experiences of cisgender students will also be examined. Utilizing the results of the current study and previous studies, suggestions to higher education campuses will be made.

Previous research has found that certain environments may better serve transgender and gender nonconforming individuals. Pflum et al. (2015) found evidence to show that social support and connectedness among other transgender individuals have a connection with lower anxious and depressive symptoms. Further, Pitcher, Camacho, Renn, and Woodford (2018) found that LGBTQ+ specific resource centers and student organizations are helpful in reducing a hostile feeling on campus that these individuals may face. This suggests that there are possible ways to combat the current issues these students experience while in college. The current research will examine some of the experiences transgender students have while at college. Moreover, the current study will examine the perceptions that cisgender students hold of their transgender peers.

## **Method**

### **Participants**

Recruitment for this research study took place online. The websites utilized included Reddit, Facebook, and Psi Chi. Additionally, the website Sona Systems was used through the participant pool at Lindenwood University. In all, a total of 137 current students were recruited. Former students were also recruited, with a total of 19. As far as gender identity, 16 participants identified as gender nonconforming and 139 participants were cisgender. Participants were also asked if they were currently or if they had previously been a student at Lindenwood University, and 116 participants revealed that they were. For compensation, students recruited through the participant pool at Lindenwood University received extra credit towards an eligible course and all other participants did not receive any form of compensation for their time.

### **Materials and Procedures**

The study was created using Qualtrics, a survey platform, and administered online (see Appendix A for full survey). Upon consenting to taking part in the study, participants were then led to further questions asking for their demographic information. I created all of the demographic questions for this survey. I first asked participants if they were currently or were ever a college student in the United States. If they indicated that they were currently a student, they were directed toward a question about gender identity. If they were previously a student, the participants were asked to clarify when they were a student. If respondents disclosed that they had never been a college student in the United States, the survey automatically led them to the feedback statement and did not request a response on any further questions. All participants



were also asked if they had ever been enrolled at Lindenwood University in order to directly provide feedback to the institution.

Current and past college students of any time period were asked to self-identify their gender identity by selecting one of two categories: cisgender and gender nonconforming. This question listed more than one gender identity; however, for research purposes, the survey led them to two different questionnaires depending on whether or not the participant identified as cisgender. Participants that identified as gender nonconforming were led to a set of questions adapted from the Trans Discrimination Scale (Watson, Allen, Flores, Serpe, & Farrell, 2018). The questions on this scale asked students to provide feedback on a Likert scale based on their experiences with discrimination on campus. There were a total of seven questions with four options ranging from “Never” to “A lot.” Participants who disclosed that they were cisgender were directed to a different set of questions created by the primary investigator. These questions were directed toward participants also through a Likert scale ranging from “Definitely yes” to “Definitely not” asking them to indicate how comfortable they would feel in a variety of situations regarding transgender students.

Following the Likert scale, gender nonconforming students were shown three specific, open-ended questions asking the participants their experience with accessibility regarding their gender identity on campus (e.g. restrooms, dorms, educational setting). Followed by this, two more open-ended questions asking for positive experiences, if any, and recommendations they would make to their campus. Cisgender students were given questions similar to the formatting of gender nonconforming students. These participants were offered one open-ended question where they could provide any feedback, comments, or experiences they wished to share regarding their experience with transgender students.

## Results

The nature of this research was exploratory, so only descriptive statistics were used from the Qualtrics report tool. When gender nonconforming students were asked about their experiences of discrimination on campus, utilizing the Trans Discrimination Scale (Watson et al., 2018), only 13 answered the questionnaire completely. Many of the responses indicated that they had rarely experienced different forms of discrimination on campus (see Table 1).

As far as better accommodations and accessibility on campus, gender nonconforming students wished for more. When asked about how accessible the students felt their dorms were, there were some varying responses; however, a majority wished for better accommodations. When participants responded to the question about access to gender affirming bathrooms, all participants either responded negatively or wished for better access. A sample response would be: “Not great, while my campus has some, I often have to cross the street to get to one, [making] them impractical to use during class. There also aren't many gender neutral showers at all, to the point where I don't shower as much as I'd like to because my only option shower is full or it's across the street and too much work in the morning.” The response to a question asking about the accessibility of changing one's name or gender on student documents was varying. Students either felt as if they were supported, did not need this accommodation, or felt as if this process was difficult. As far as positive experiences on campus, many gender nonconforming students responded that they felt most positively when it comes to the social aspects of feeling supported. For example, many responded that they received social support: “My campus has a transgender support/social group where I met people who became my closest friends and allies during my transition. That group and the LGBT resource office at my school have been incredibly supportive and helpful in locating local resources” and “I did meet many trans friends

in college and felt a great sense of community.” Responses from cisgender students were, for the most part, positive toward their transgender peers (see Table 2).

### **Discussion**

The results provide evidence for a need for change within higher education institutes. As indicated, many gender nonconforming students wished for better accommodations on their respective campus. Further, many cisgender students show support for their gender nonconforming peers and also show higher levels of comfortability. This means that cisgender students would likely not be impacted by better accommodations for gender nonconforming students. Similar to research findings of Pflum et al. (2015), the current research also found that one way to create a healthy campus climate for transgender students is better social support. Many of the transgender students indicated that their positive experiences involved groups specifically for LGBTQ support. This idea could be something of consideration for universities as well. While the results show through the discrimination scale that transgender students are not experiencing a high amount of discrimination, the qualitative data collected from this survey show that the students experience troubles just in other ways. This also shows that discrimination is not always shown in obvious ways and may be instead through little accommodations on campus.

Some changes for further research would include a more inclusive sample. This sample included many gender nonconforming students, particularly compared to the national population. Additionally, the sites this online research was posted on along with the recruitment may have only recruited participants who were interested. Other possibilities for future research could include different types of questionnaires or discrimination inventories. For the purpose of this study, one that could be easily manipulated to fit the population was utilized. The implications

of this research are essential and show a need for change for gender nonconforming students at the higher educational level. Further research might also consult with transgender individuals on the data gathering process. Another suggestion would be to look at transgender high school students, which is also an underrepresented population. The general theme for suggestions from gender nonconforming students would be that they just want to be listened to and respected, as their other peers are.

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Appendix A

Copy of Survey

**Standard: Consent (1 Question)**

**Block: Demographic (5 Questions)**

**Branch: New Branch**

**If**

**If Do you currently identify as one or more of the following: transgender, gender queer, gender neu... Yes Is Selected**

**Block: Questions for GNC (1 Question)**

**Block: Questions for GNC pt.2 (5 Questions)**

**Block: Feedback letter (1 Question)**

**EndSurvey:**

**Branch: New Branch**

**If**

**If Do you currently identify as one or more of the following: transgender, gender queer, gender neu... No Is Selected**

**Block: Questions for cis students (3 Questions)**

**Block: Feedback letter (1 Question)**

**EndSurvey:**

---

### Start of Block: Consent

#### Q1 Survey Research Information Sheet

You are being asked to participate in a survey conducted by Mariah Palmer, mkp622@lindenwood.edu under the guidance of Michiko Nohara-LeClair, mnohara-leclair@lindenwood.edu at Lindenwood University. We are doing this study to examine the experiences and perceptions of students on college campuses in hopes to provide feedback to universities in areas where their policies or accessibility may be lacking. It will take about 15 mins to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time by simply not completing the survey or closing the browser window.

There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.

If you are a Lindenwood student an enrolled in the LPP you will receive one extra credit point in the course for which you signed up for the LPP. You will receive extra credit simply for completing this information sheet. You are free to withdraw your participation at any time without penalty. Participants who are not part of the LPP will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science. By participating, you also have been given the opportunity to have your voice heard on a topic that is essential to college life.

#### WHO CAN I CONTACT WITH QUESTIONS?

If you have concerns or complaints about this project, please use the following contact information:

Mariah Palmer, mkp622@lindenwood.edu

Michiko Nohara-LeClair, mnohara-leclair@lindenwood.edu



If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

By clicking the link below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age.

You can withdraw from this study at any time by simply closing the browser window. Please feel free to print a copy of this information sheet.

By clicking the link below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by simply not completing the survey. My consent also indicates that I am at least 18 years of age, or that I have parental consent on file with the Lindenwood Participant Pool.

### End of Block: Consent

---

### Start of Block: Demographic

Q2 Which of these describes you best?

- I am a college student in the United States. (1)
- I was previously a college student in the United States. (2)
- I have never been a college student in the United States. (3)

- Skip To: Q4 If Which of these describes you best? = I am a college student in the United States.
  
- Skip To: Q3 If Which of these describes you best? = I was previously a college student in the United States.
  
- Skip To: End of Survey If Which of these describes you best? = I have never been a college student in the United States.

Q3 Which of these best matches when you attended college?

- 1-5 years ago. (1)
  
- 6-10 years ago. (2)
  
- 11-15 years ago. (3)
  
- 16+ years ago. (4)

Q4 Have you even been an enrolled student at Lindenwood University?

- Yes (1)
  
- No (2)

Q5 Do you currently identify as one or more of the following:

transgender, gender queer, gender neutral, intersex, gender nonconforming, non-binary, gender expansive, gender fluid, and/or gender diverse?

Yes (1)

No (2)

Q6 The next part of this survey is going to ask you about some of your experiences on your college campus.

have parental consent on file with the Lindenwood Participant Pool.

**End of Block: Consent**

---

**Start of Block: Demographic**

Q2 Which of these describes you best?

I am a college student in the United States. (1)

I was previously a college student in the United States. (2)

I have never been a college student in the United States. (3)

*Skip To: Q4 If Which of these describes you best? = I am a college student in the United States.*

*Skip To: Q3 If Which of these describes you best? = I was previously a college student in the United States.*

*Skip To: End of Survey If Which of these describes you best? = I have never been a college student in the United States.*

---

Page Break

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Q3 Which of these best matches when you attended college?

- 1-5 years ago. (1)
  - 6-10 years ago. (2)
  - 11-15 years ago. (3)
  - 16+ years ago. (4)
- 

Page Break

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Q4 Have you even been an enrolled student at Lindenwood University?

- Yes (1)
  - No (2)
- 

Page Break

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Q5 Do you currently identify as one or more of the following:

transgender, gender queer, gender neutral, intersex, gender nonconforming, non-binary, gender expansive, gender fluid, and/or gender diverse?

- Yes (1)
- No (2)

---

Page Break

Q6 The next part of this survey is going to ask you about some of your experiences on your college campus.

---

Page Break

End of Block: Demographic

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Start of Block: Questions for GNC

Q7 Please answer the following as it relates to your college experience:

	Never (1)	A little (2)	Sometimes (3)	A lot (4)
I have had others deny or minimize [my] experiences of gender discrimination. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced harassment or bullying from peers. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been judged by others after they learned about my gender identity. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had teachers or instructors refuse to stop abuse or bullying directed toward me. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced people who refused to use my gender pronouns (e.g., he, her, they, zir) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced harassment from faculty, staff, and administrators. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced social rejection. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Questions for GNC

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Start of Block: Questions for GNC pt.2

Q8 How do you feel about the accessibility to gender affirming dorms on your college campus?

If you are no longer a college student, please indicate how you felt about it when you were a college student.

---

Q9 How do you feel about the accessibility to gender affirming restrooms on your college campus?

If you are no longer a college student, please indicate how you felt about it when you were a college student.

---

Q10 How supported do you feel by your educational setting in regard to changing your name or gender associated with your student accounts?

If you are no longer a college student, please indicate how you felt about it when you were a college student.

---

Q11 What are some positive experiences you have had on campus regarding your gender identity?

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Q12 If you had any suggestions on how to improve the experience for students on campus, what would they be?

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**End of Block: Questions for GNC pt.2**

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**Start of Block: Questions for cis students**

Q16 Please answer the following as it relates to how you would feel about people who are transgender in a variety of different situations:

Transgender is defined as "relating to, or being a person whose gender identity differs from the sex the



person had or was identified as having at birth" (<https://www.merriam-webster.com/dictionary/transgender>)

	Definitely yes (1)	Probably yes (2)	Might or might not (3)	Probably not (4)	Definitely not (5)
I would feel comfortable sharing a dorm room with a transgender student. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel comfortable using the same restroom as a transgender student. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel comfortable being in the same classroom as a transgender student. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel comfortable being good friends with a transgender student. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 Do you have any further experiences with transgender students that you wish to share?

Please list any experience that you wish to disclose, both positive and/or negative.

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Q17 Do you have any other comments or thoughts that you wish to share?

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**End of Block: Questions for cis students**

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**Start of Block: Feedback letter**

Q17 Thank you for participating in my study. I was interested in gathering data on gender nonconforming students in order to provide feedback to universities, if any. This is an extremely vulnerable population, and many find that accessibility and acceptance is lacking on college campuses.

Participants were separated into two categories- gender nonconforming and cisgender students. From there, they were asked different questions. Gender nonconforming students were asked to provide feedback based on their own personal experiences and cisgender students were asked to disclose how comfortable they were and any experiences they had regarding gender nonconforming individuals. All of this was done to hopefully provide constructive feedback and suggestions to universities on how to make their campus more inclusive.

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. My contact information is found at the bottom of this letter.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator: Mariah Palmer (mkp622@lindenwood.edu)

Faculty Supervisor: Dr. Michiko Nohara-LeClair (mnohara-leclair@lindenwood.edu)

**End of Block: Feedback letter**

Table 1

Table 1

*Trans Discrimination Scale*

<u>Questions</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD</u>	<u>Variance</u>	<u>Count</u>
I have had others deny or minimize your experiences of gender discrimination.	1	4	2.07	0.96	0.92	14
I have experienced harassment or bullying from peers.	1	3	1.36	0.72	0.52	14
I have been judged by others after they learned about my gender identity.	1	4	1.93	0.96	0.92	14
I have had teachers or instructors refuse to stop abuse or bullying directed toward me.	1	3	1.14	0.52	0.27	14
I have experienced people who refused to use my gender pronouns (e.g., he, her, they, zir)	1	3	1.79	0.94	0.88	14
I have experienced harassment from faculty, staff, and administrators.	1	3	1.21	0.56	0.31	14
I have experienced social rejection.	1	3	1.71	0.8	0.63	14

Table 2

Table 2

*Cisgender Responses*

<u>Questions</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD</u>	<u>Variance</u>	<u>Count</u>
I would feel comfortable sharing a dorm room with a transgender student.	1	5	2.47	1.35	1.81	133
I would feel comfortable using the same restroom as a transgender student.	1	5	1.77	1.09	1.2	133
I would feel comfortable being in the same classroom as a transgender student.	1	5	1.21	0.63	0.39	133
I would feel comfortable being good friends with a transgender student.	1	5	1.5	0.82	0.67	133